RespireRx Pharmaceuticals Inc

OTCQB: RSPI

Q4 INVESTOR SUMMIT

November 14-15, 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, 2021, as filed with the SEC on April 15, 2022 (the "2021 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 2021 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 2021 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, refer to "Item 1A. Risk Factors" in our 2021 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. 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.

CAUTIONARY NOTES (cont'd)

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 – Underlying Science

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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

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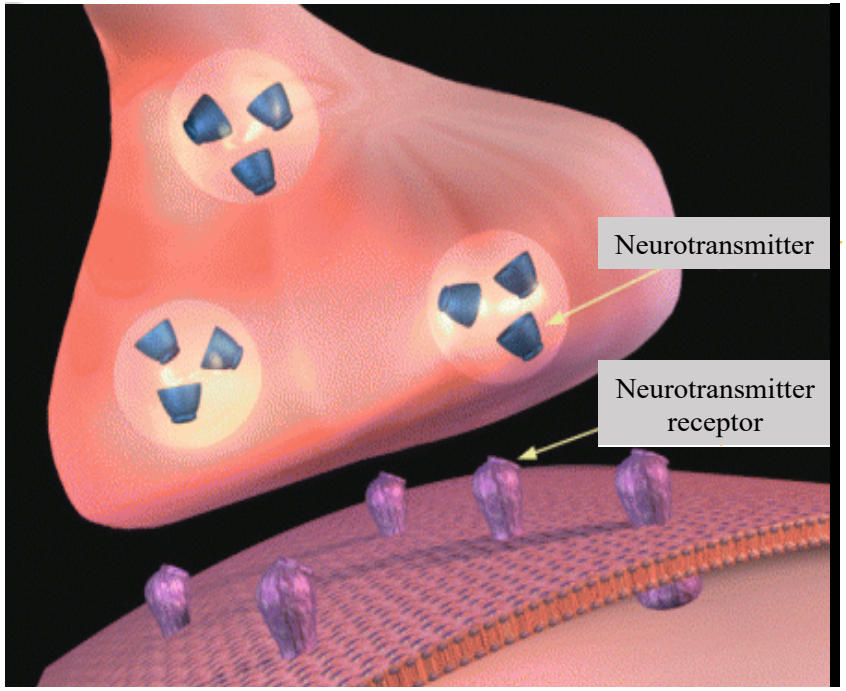

Directly Acting Agonists/Antagonists

- 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

Product Candidate Portfolio Summary

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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

Sleep Apnea: A National Health Epidemic

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3 Types of Sleep Apnea

- **Obstructive** (OSA) - a peripheral phenomenon that occurs when throat muscles intermittently relax and block airway during sleep
  - May be accompanied by snoring
- **Central** (CSA) – a brain-mediated phenomenon that occurs when breathing control centers in the brain reduce activity
  - Frequently caused by opioid consumption
- **Mixed** - a combination of OSA and CSA


During sleep apnea, air flow is completely blocked.

~ 30 million Americans Stop Breathing Every Night
5-50 Times per Hour!

SLEEP APNEA IS NOT MERELY SNORING

Two Successful Phase 2 Trials

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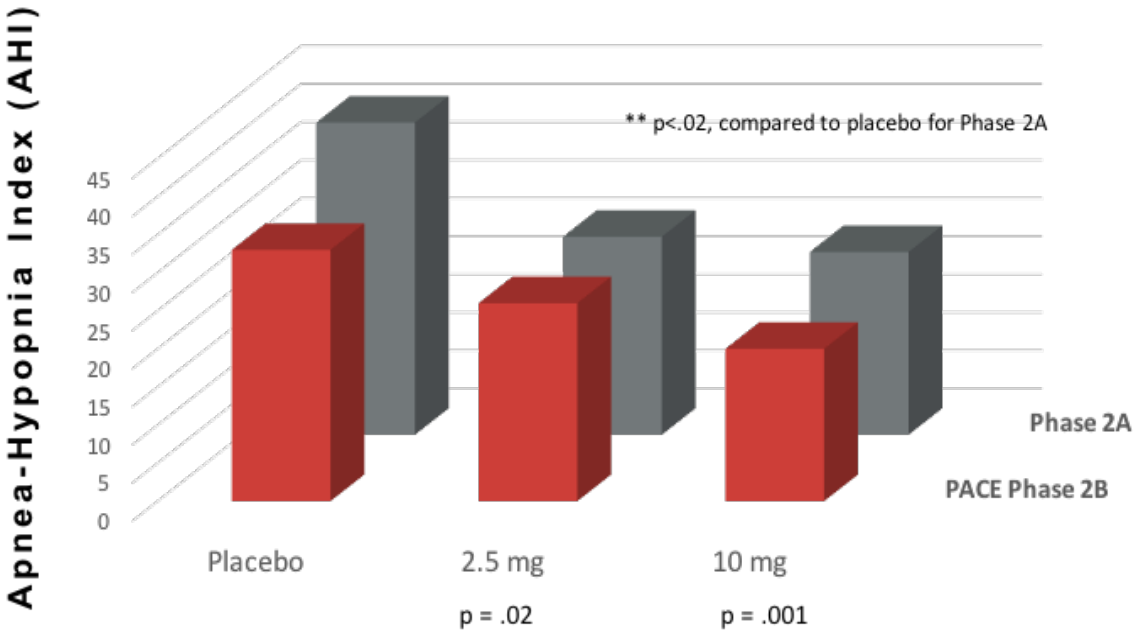
The Published Literature Can be used to Support a 505(b)2 NDA for Dronabinol in OSA



Two Phase 2 Trials Have Shown that Dronabinol Treatment Results in a Statistically Significant, Dose Related Improvement in AHI, the Primary Endpoint for FDA Approval

* Double blind, placebo controlled dose-ascending study in patients with OSA, 2a n=19 2b n=57

[1] Published in Frontiers in Psychiatry January 2013 | Volume 4 | Article 1

New Formulations Based on Clinical Data

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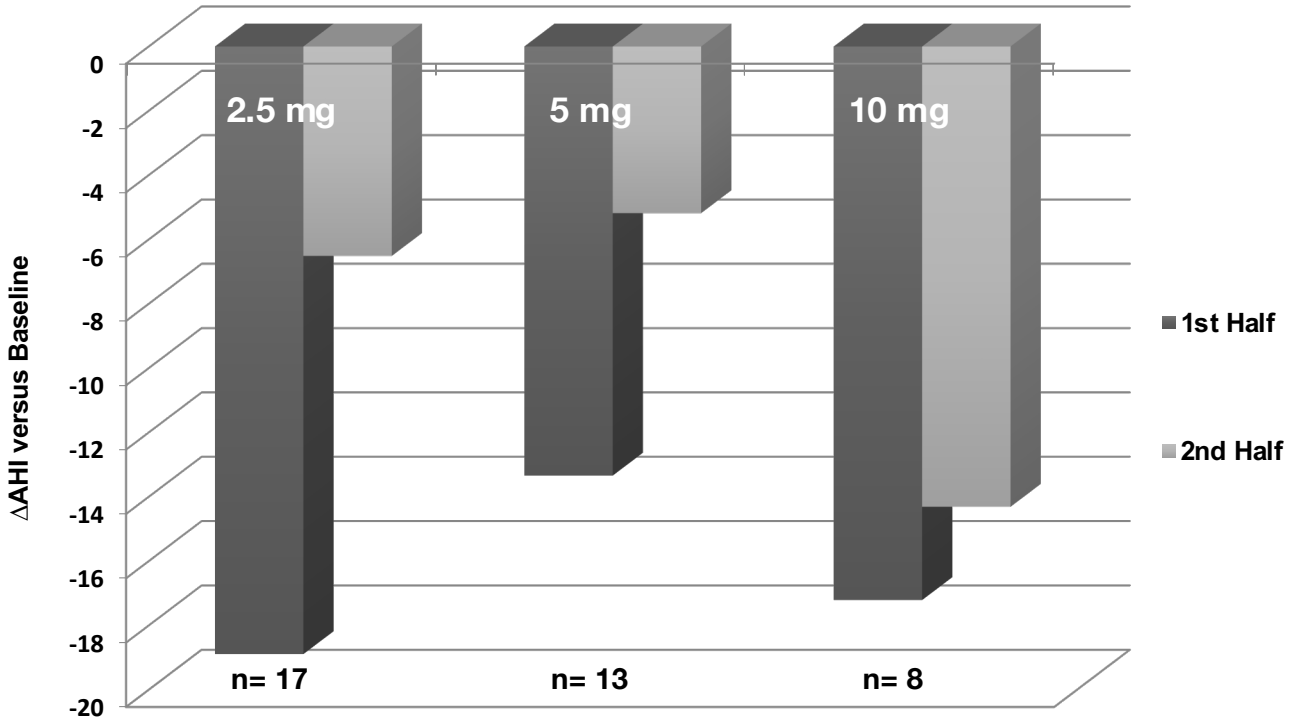
Change in AHI in the 1st 4 hours vs. the 2nd 4 hours of the night



The plasma half-life of dronabinol is 2 – 4 hours

- **Low dose dronabinol is as effective as the high dose in the first half of the night**
- **Effectiveness diminishes in the second half of the night**
- **Opportunities for low dose-controlled release formulations**

Present Dronabinol Gel-cap Formulations

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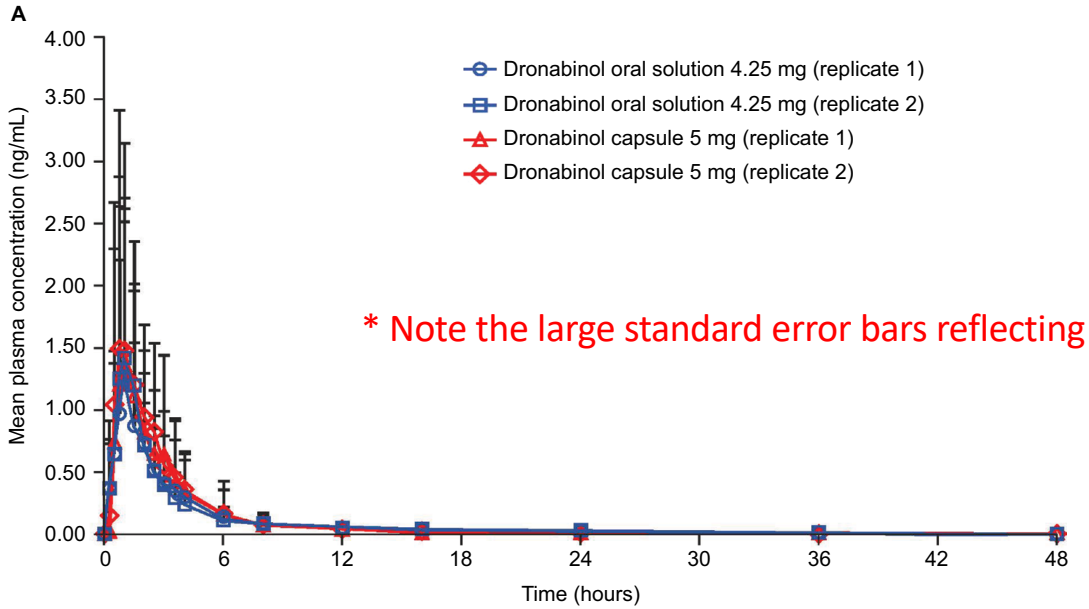
- Poor and erratic absorption, with some patients achieving very high levels and others achieving very low levels.



* Note the large standard error bars reflecting a very high variability

Parikh *et al*, Clinical Pharmacology: Advances and Applications 2016:8 155–162

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EndeavourRx

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AMPA Glutamate Receptor Structure

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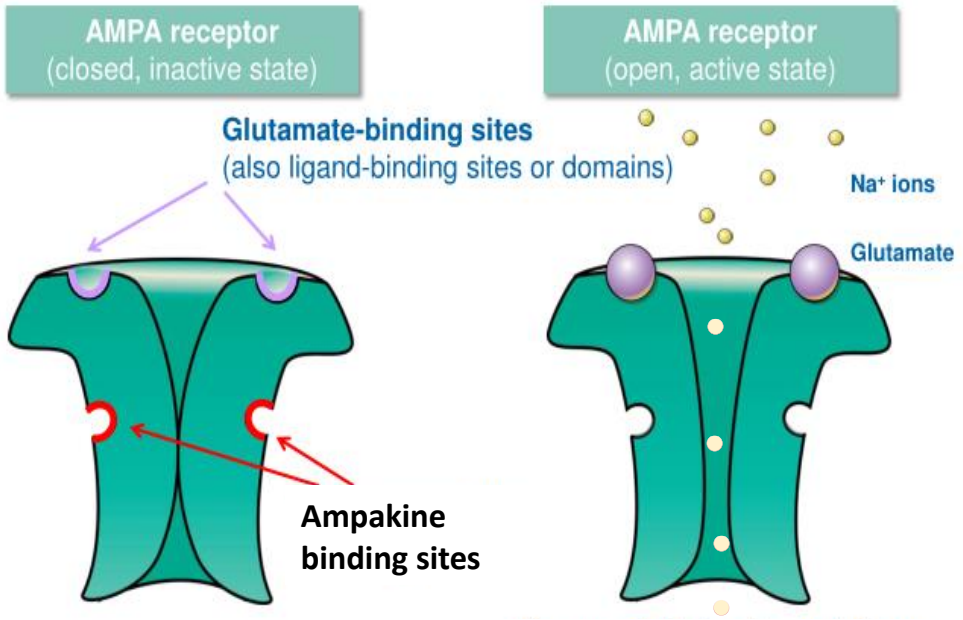
- The AMPA receptor is composed of four transmembrane proteins that form a pore, which when activated by glutamate opens and allows positive ions to enter the cell.
- Ampakine binding sites are located adjacent to the glutamate binding sites and increase the normal excitatory response to glutamate.
- As opposed to direct acting agonists that constantly bombard the glutamate binding site in a non-physiological manner, ampakines act by enhancing the natural actions of glutamate.
- ***The AMPA receptor proteins are heterogeneous and form various combinations allowing for subtype specificity and neuroanatomical and pharmacological selectivity.***



The receptors ion channel allows influx of Na^+ and Ca^{2+} ions into the neuron

CX717 Shows Significant Improvement in ADHD

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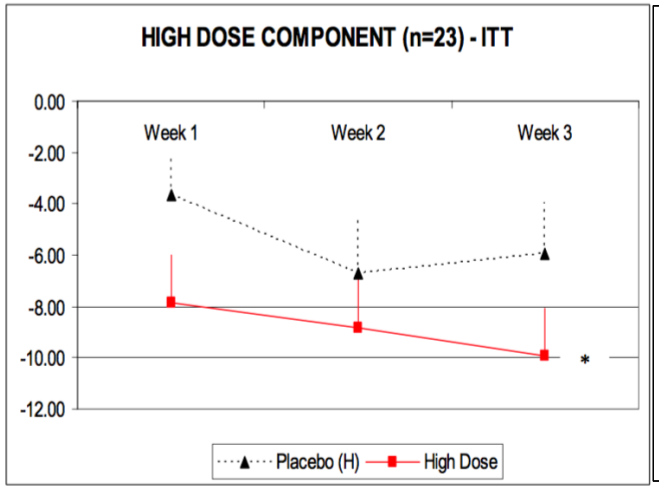
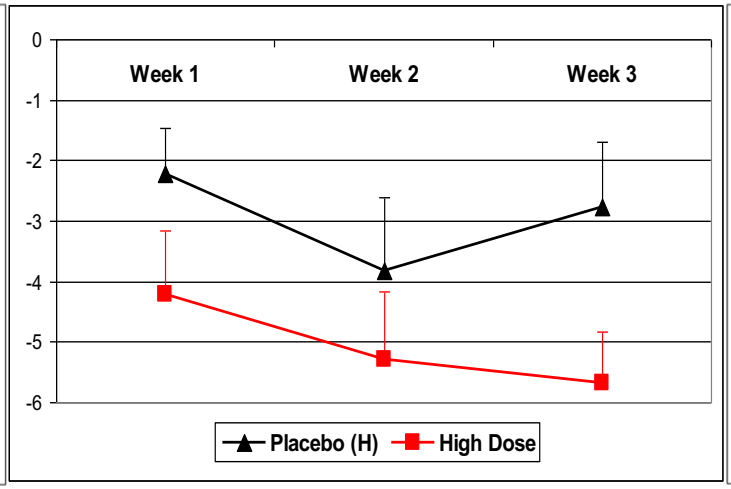
OVERALL ADHR-RS



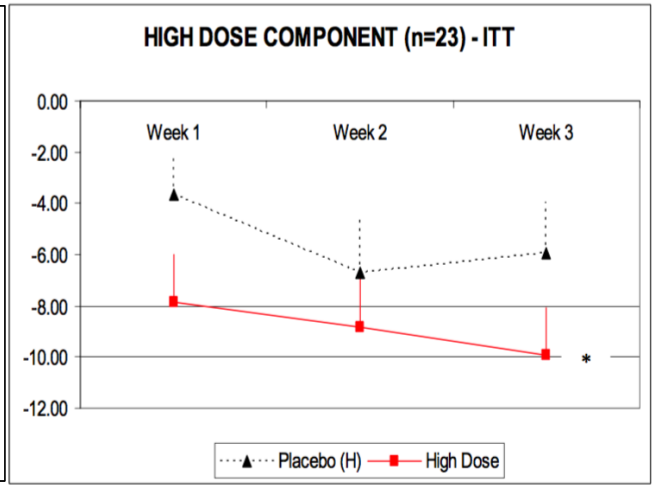
Mean Change from baseline
* Repeated measures analysis , p=0.002

HYPERACTIVITY



Mean Change from baseline
* Repeated measures analysis , p<0.05

INATTENTIVENESS



Mean Change from baseline
* Repeated measures analysis , p<0.04

Phase 2 Study of CX717 in Adult ADHD: Randomized, double-blind, multi-center, 2-period crossover study that compared 2 doses of CX717 (200 or 800 mg BID) with placebo. Statistically significant effects were observed with 800 mg as early as week 1.

Spinal Cord Injury Metrics

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There are ~288,000 People Living with Spinal Cord Injury in the U.S.*

12,500
Number of new cases of Spinal Cord Injuries (SCI) each year (NSCISC)

$3,398,426
Lifetime Costs for Low Tetraplegia Injury at 25 years old (Economic Impact of SCI)

<1%
People who had complete neurologic recovery by time of hospital discharge

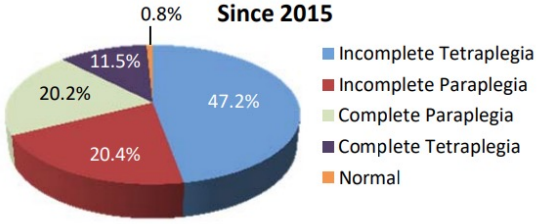
CONDITION	1ST YEAR	EACH FOLLOWING YEAR
• High Tetraplegia	$1,044,197	$181,328
• Low Tetraplegia	$754,524	$111,237
• Paraplegia	$508,904	$67,415
• Incomplete motor function	$340,787	$41,393

Treatment Costs are High and Continue for Life

***Note that the targeted SCI patient population (incomplete SCI) is <200,000 and therefore may qualify for orphan disease status**

Neurological Level and Extent of Lesion

Incomplete tetraplegia is currently the most frequent neurological category. The frequency of incomplete and complete paraplegia is virtually the same. Less than 1% of persons experienced complete neurological recovery by the time of hospital discharge.



National Spinal Cord Injury Statistical Center, Facts and Figures at a Glance. Birmingham, AL: University of Alabama at Birmingham, 2018.

Acute doses of CX717 Improve Motor Neuron Firing in Animal Models of Spinal Cord Injury

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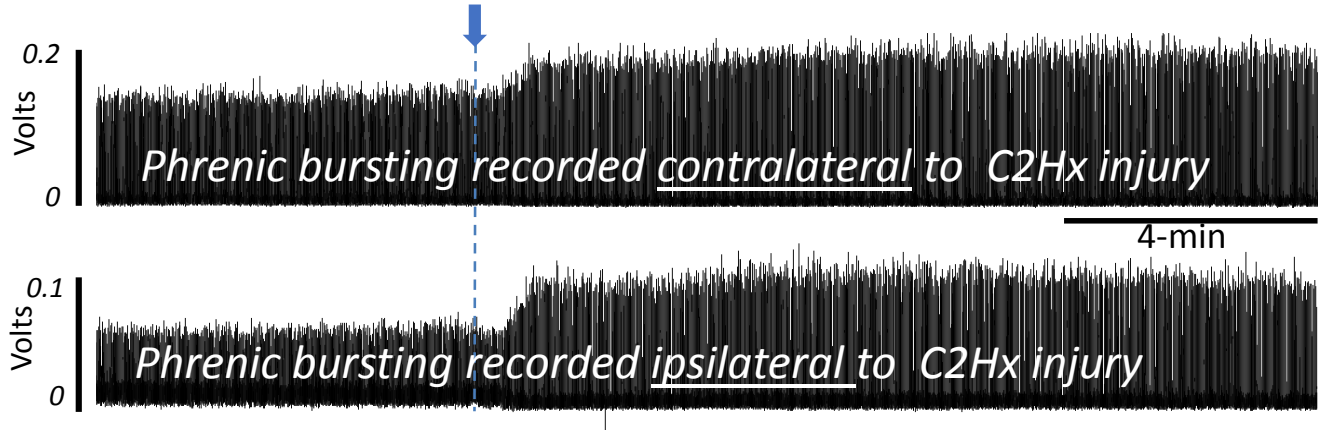
Unilateral hemi-transections at the level of the 2nd cervical vertebra are performed on rats and electrical activity is recorded from phrenic nerves, which innervate the diaphragm and contribute to the regulation of breathing.



8 weeks following surgery, CX717 (15 mg/kg) increases amplitude in electrical recordings taken from rat phrenic nerves

CX717 + Acute Intermittent Hypoxia (IH) vastly Improves Motor Neuron Firing

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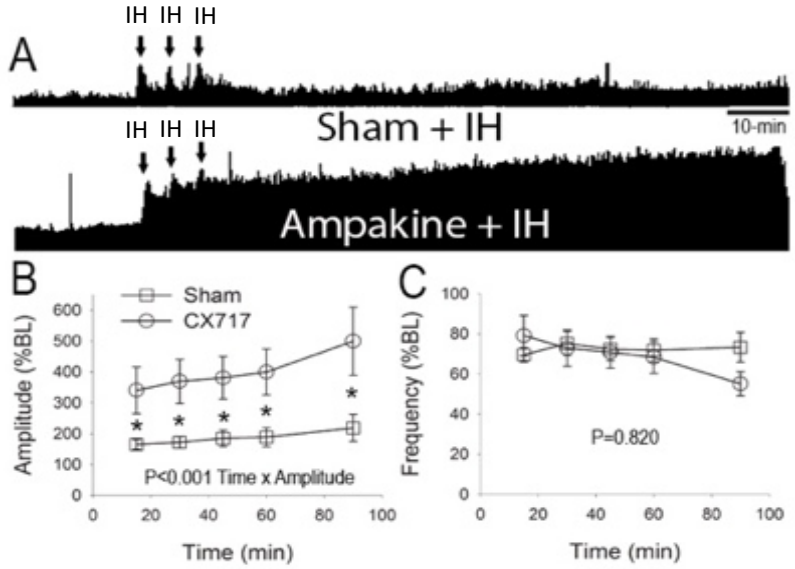

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$GABA_A$ Receptor Structure

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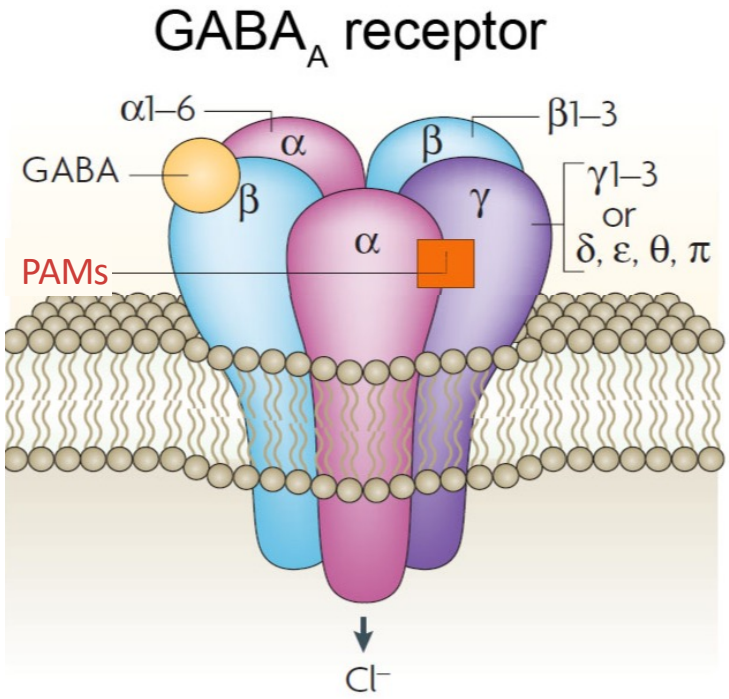
- The $GABA_A$ receptor is composed of five transmembrane proteins that form a pore, which when activated by GABA opens and allows chloride to enter the cell.
- $GABA_A$ Positive Allosteric Modulators (PAM) binding sites are located adjacent to the GABA binding sites and increase the normal inhibitory response to GABA.
- As opposed to direct acting agonists that constantly bombard the GABA binding site in a non-physiological manner, PAMs act by enhancing the natural actions of GABA.
- The GABA receptor proteins are heterogeneous and form various combinations allowing for subtype specificity and neuroanatomical and pharmacological selectivity.



Superior Anti-convulsant Efficacy of KRM-II-81 over Standard of Care

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Model System	Species	Efficacy	Reference
CHEMICAL SEIZURE PROVOCATION MODELS			
Pentylenetetrazol – clonic seizures	Rat	= Diazepam	Witkin et al., 2018
Pentylenetetrazol – clonic seizures	Mouse	= Diazepam	Knutson et al., 2020
Pentylenetetrazol – tonic seizures	Mouse	= Diazepam	Knutson et al., 2020
Pentylenetetrazol – lethality	Mouse	= Diazepam	Knutson et al., 2020
Pentylenetetrazol – seizure threshold	Rat	> Diazepam	Witkin et al., 2018
Cocaine – clonic seizures	Mouse	> Diazepam	Knutson et al., 2020
4-Aminopyridine – clonic seizures	Mouse	> Diazepam	Knutson et al., 2020
4-Aminopyridine – tonic seizures	Mouse	> Diazepam	Knutson et al., 2020
4-Aminopyridine – lethality	Mouse	= Diazepam	Knutson et al., 2020
NMDA – clonic seizures	Mouse	> Diazepam	Knutson et al., 2020
NMDA – lethality	Mouse	> Diazepam	Knutson et al., 2020
Picrotoxin – clonic seizures	Mouse	= Diazepam	Knutson et al., 2020
Picrotoxin – tonic seizures	Mouse	> Diazepam	Knutson et al., 2020
Picrotoxin – lethality	Mouse	> Diazepam	Knutson et al., 2020
Strychnine – clonic seizures	Mouse	> Diazepam	Knutson et al., 2020
Strychnine – tonic seizures	Mouse	> Diazepam	Knutson et al., 2020
Strychnine – lethality	Mouse	> Diazepam	Knutson et al., 2020
Pilocarpine – clonic seizures	Mouse	= Diazepam	Knutson et al., 2020
Pilocarpine – lethality	Mouse	= Diazepam	Knutson et al., 2020
ELECTRICAL SEIZURE PROVOCATION MODELS			
6Hz stimulation – 44mA	Mouse	ND	Witkin et al., 2018
Electroconvulsive Shock	Mouse	= Diazepam	Witkin et al., 2018

Superior Anti-convulsant Efficacy of KRM-II-81 over Standard of Care

RespireRx Pharmaceuticals Inc

Model System	Species	Efficacy	Reference
SEIZURE SENSITIZATION			
Corneal kindling	Mouse	>Tpm	Witkin et al., 2020
Amygdala kindling-ADT	Rat	> Diazepam	Witkin et al., 2018
Amygdala kindling-ADD	Rat	= Diazepam	Witkin et al., 2018
Amygdala kindling-Seizure Severity	Rat	= Diazepam	Witkin et al., 2018
Pentylenetetrazol kindling – Fully kindled	Mouse	= Diazepam	Knutson et al., 2020
Pentylenetetrazol kindling - Expression	Mouse	= Diazepam	Knutson et al., 2020
Pentylenetetrazol kindling - Development	Mouse	> Diazepam	Knutson et al., 2020
Cocaine kindling-– Fully kindled	Mouse	> Diazepam	Knutson et al., 2020
Cocaine kindling- Expression	Mouse	> Diazepam	Knutson et al., 2020
Cocaine kindling- Development	Mouse	> Diazepam	Knutson et al., 2020
PHARMACORESISTANT MODELS			
Mesial temporal lobe epilepsy	Mouse	>Ltg, Val	Witkin et al., 2020
Ltg-insensitive kindling	Rat	>Ltg, Tpm	Witkin et al., 2020
Kainate-induced chronic epilepsy	Rat	>Ltg, Lev	Witkin et al., 2020
HUMAN EPILEPTIC TISSUE			
Picrotoxin stimulation	Human	Active	Witkin et al., 2018
4-Aminopyridine stimulation	Human	Active	Witkin et al., 2018
4-Aminopyridine stimulation	Human	Active	Unpublished

Translational Results Predict Human Efficacy

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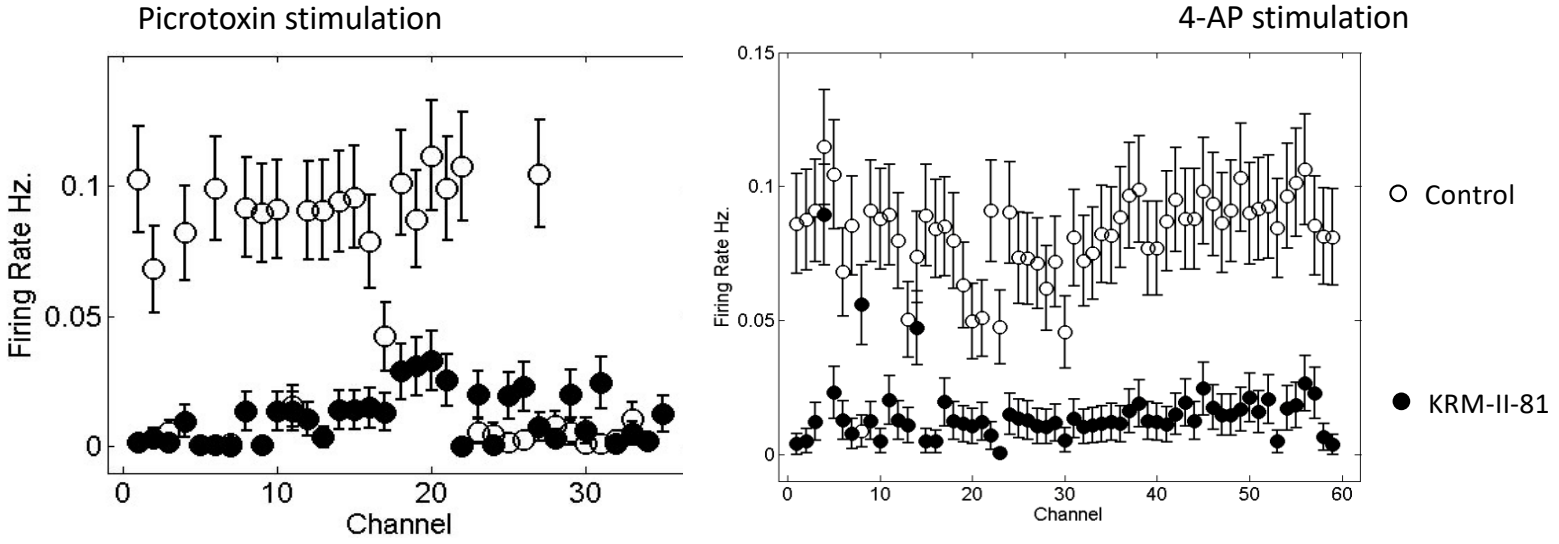
KRM-II-81 Reduces Epileptiform Activity in Cortical Slices from Juvenile Epileptic Patients



Electrical recordings were made from epileptic brain tissues removed from juvenile patients with pharmaco-resistant epilepsy. Data presented with the approval of the parents

*Reference - Witkin et al, Brain Res. 1722 (2019) 146356

Chronic Pain – Neuropathic and Inflammatory

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Compound	Pain model	Species	Comparators	References
KRM-II-81	Acetic and lactic-acid-induced writhing, nesting and locomotion	ICR mice	Morphine	Lewter et al. (2017)
KRM-II-18B	Acetic and lactic-acid-induced writhing, nesting and locomotion	ICR mice	Morphine	Lewter et al. (2017)
KRM-II-81	Lactic-acid and ICSS behavior	Sprague Dawley rats	Ketorolac and diazepam	Moerke et al. (2019)
MP-III-024	Zymosin A-induced mechanical hyperalgesia	C57BL/6 mice	Gabapentin	Fischer et al., 2017
KRM-II-81	Formalin-induced tactile hyperalgesia	Sprague-Dawley rats	Tramadol and diazepam	(Witkin et al. (2019)
KRM-II-81	L5/6 nerve ligation – induced tactile hyperalgesia	Sprague-Dawley rats	Gabapentin	(Witkin et al. (2019)
KRM-II-81	L5/6 nerve ligation – senitization training - induced tactile hyperalgesia	Sprague-Dawley rats	Gabapentin	(Witkin et al. (2019)
KRM-II-81	Chemotherapy-induced thermal hyperalgesia	C57BL/6 mice	Gabapentin	Biggerstaff et al. (2020)
KRM-II-81	Chemotherapy-induced tactile hyperalgesia	C57BL/6 mice	Gabapentin	Biggerstaff et al. (2020)
HZ-166	Zymosin A-induced mechanical hyperalgesia	C57BL/6 mice	Gabapentin	Di Lio et al. (2011)
HZ-166	Chronic constriction injury	C57BL/6 mice	Gabapentin	Di Lio et al. (2011)
HZ-166	Inflammotory bladder pain	Neonatal Sprague-Dawley rats	No	Kannampalli et al. (2017)

KRM-II-81 Is Efficacious Against Neuropathic Pain

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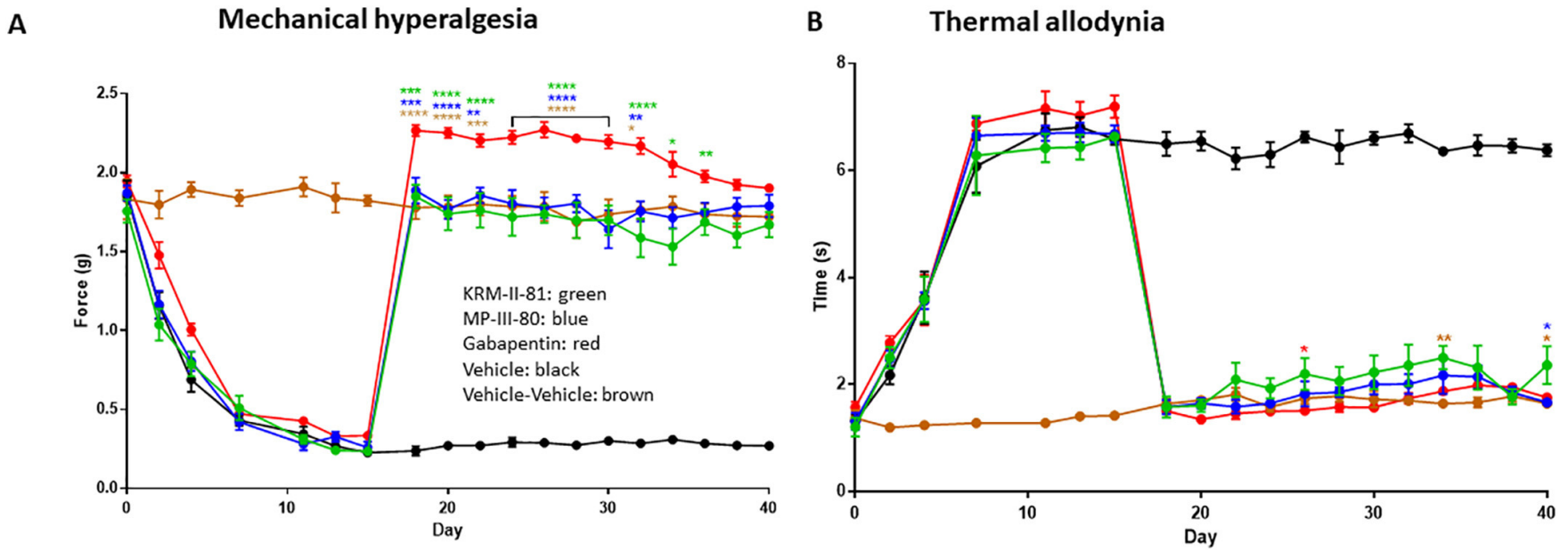
Tolerance does not develop with repeated administration of KRM-II-81



Effects of daily KRM-II-81, MP-III-80 and gabapentin administration on chronic neuropathic pain (Day 18–40).

Biggerstaff et al, Pharmacol. Biochem. Behavior, 2019

Intellectual Property

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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.)
- Pending patents and provisional patent applications on broad, enabling dosage and modified release formulations with patent life expected through at least 2041
- New superior formulation creates opportunities for broadening patents and strengthens barriers to generic market entry
- Longevity of broader cannabinoid patent claims anticipated through at least 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

GABAkines ($GABA_A$ Receptor Positive Allosteric Modulators)

- Broad family of patents
- Patent longevity: current patents expire in 2032 and 2036 respectively

Global Market Opportunities

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ResolutionRx

Dronabinol (Δ9-THC)

Obstructive Sleep Apnea (OSA):

- Potential $ multi-billion market with no approved drugs available
- Estimated 30 million US patients and 28 million in UK and Germany combined
- New superior formulation offers potential for improved efficacy and expanded range of indications
- New proprietary formulation creates opportunities for broadening IP and strengthens barriers to generic market entry

EndeavourRx

AMPAkines

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

Planned Short-Term Milestones

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ResolutionRx

Dronabinol (∆9-THC)

- Pre-IND meeting with FDA
- PK studies with new formulation
- Patent filings
- 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 but 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

- ✓ **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, 2021. You should also consult any subsequent disclosures we have made or may make in the filings we make with the SEC.

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.

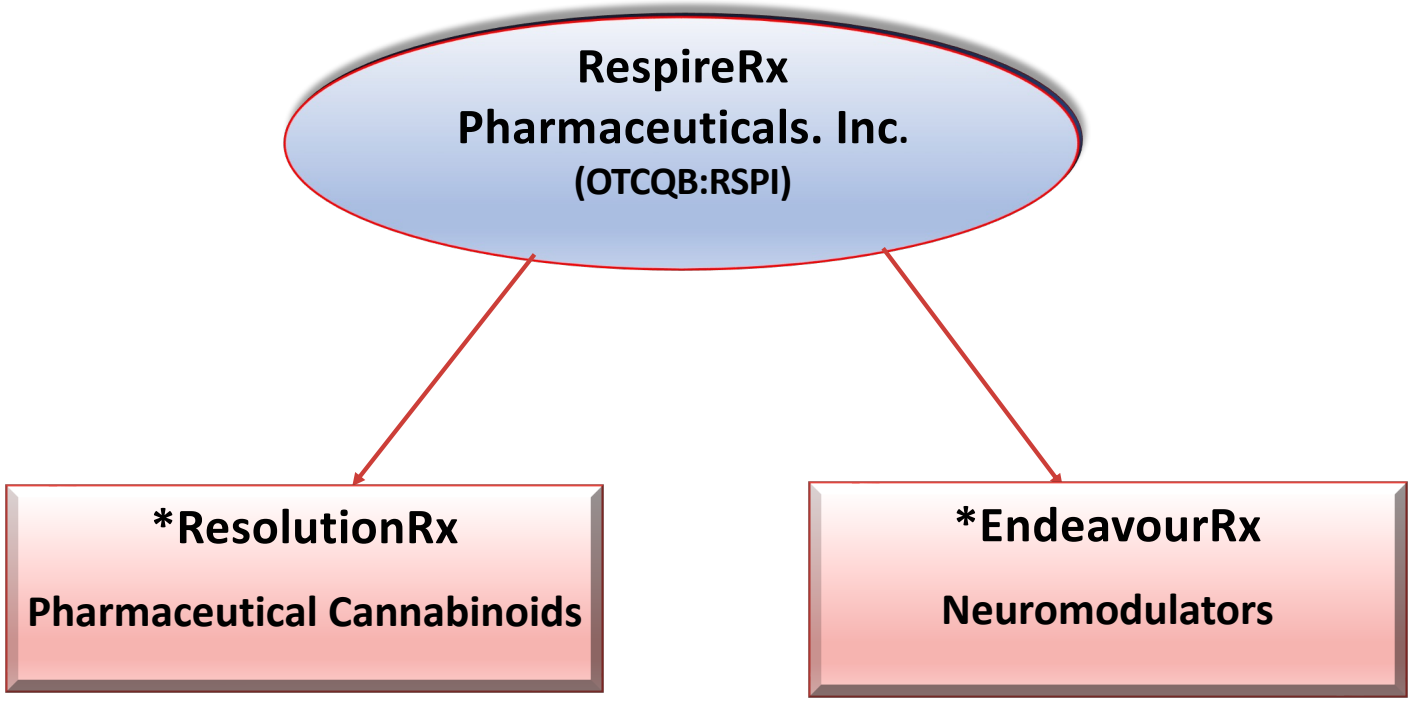
RespireRx: Capital Structure and Market Metrics

	As of June 30, 2022 (unless indicated otherwise)
Common Stock (rounded)	117,069,000
Common Stock Equivalents of all Convertible Notes and Preferred Stock issued (as if converted), Options and Warrants Granted (rounded)*	186,232,000
Total	303,301,000
	Market Metrics at October 31, 2022
Closing price	$0.0057
Market Capitalization (rounded) - Fully diluted	$1,729,000
Market Capitalization (rounded) - Primary Basis	$667,000

* Does not include or account for (a) common shares issuable upon conversion of additional interest accrued after June 30, 2022, (b) shares issuable upon conversion of three convertible promissory notes inclusive of accrued interest, issued on August 22, 2022 or (c) the effect on the number of common shares issuable upon conversion of certain other convertible notes or the effect on the number of additional warrants that may be issued and their exercise price as a result of the application of the most-favored-nations provisions of those certain other convertible notes, warrants or the related securities purchase agreements.

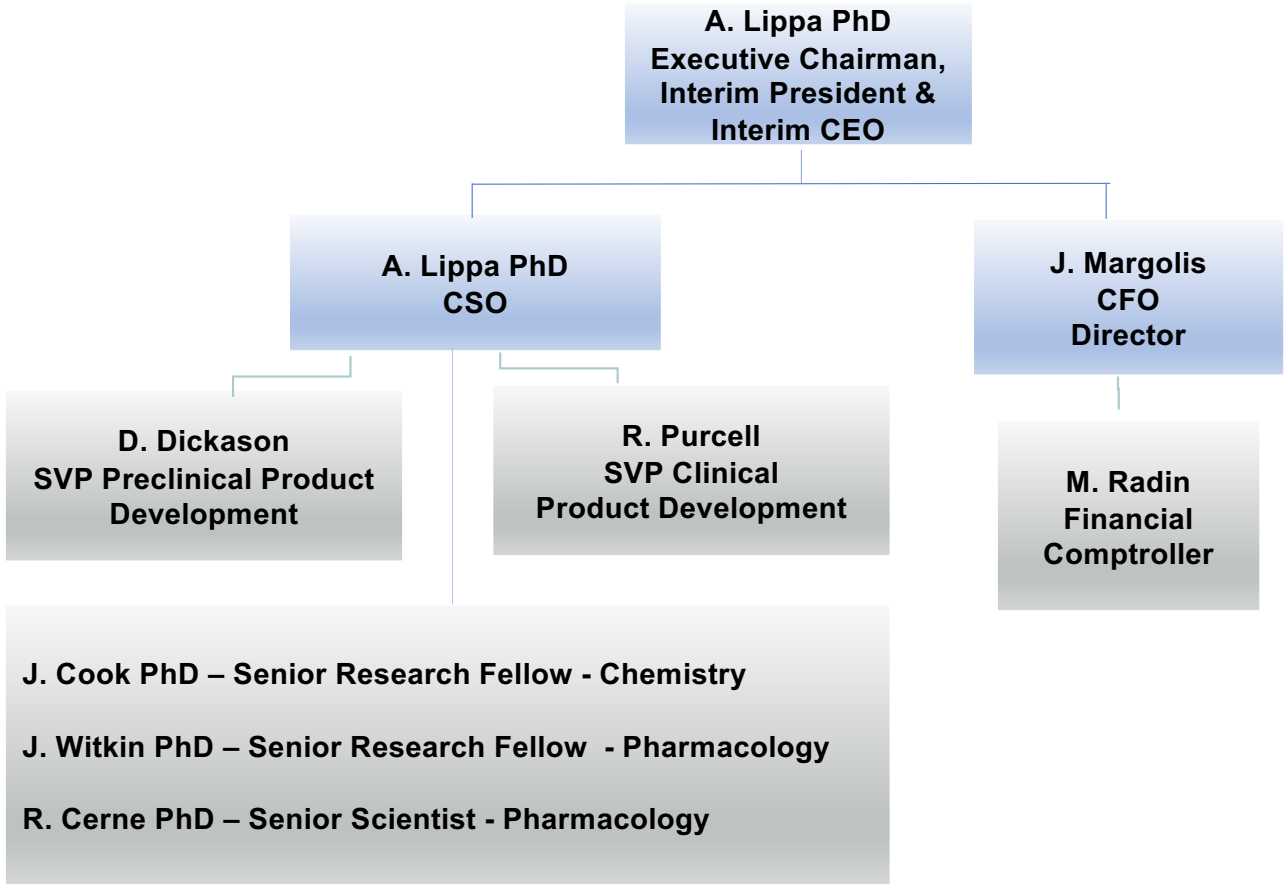
Separate Business Units for Different Platforms

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.

RespireRx - Organizational Structure



Discovery Scientific Team Leaders

- **Dr. Arnold Lippa**, Executive Chairman and CSO at RespireRx, has spent the last 9 years clinically developing low impact ampakines for a variety of neuronal disorders. He also is a leading expert in $GABA_A$ receptors, having discovered the first drugs to distinguish $GABA_A$ receptor heterogeneity by selectively acting at a specific subtype of $GABA_A$ receptors. In animal models and human clinical trials, these drugs displayed anti-anxiety and anti- convulsant properties in the absence of sedation and muscular incoordination. These findings gave impetus to the search for novel therapeutic drugs for neurological and psychiatric illnesses that display improvements in efficacy and reductions in side effects.

- **Dr. Jeffrey Witkin**, now at the University of Wisconsin-Milwaukee where he has co-led the team with Dr. Cook, previously spent 17 years directing Neuroscience Discovery Laboratory at Lilly Research Labs where he headed biological efforts to discover multiple antidepressants and novel glutamate and $GABA_A$ receptor neuromodulators. Several of these compounds are in clinical development for depression and epilepsy. Prior to working at the Lilly Research Labs, he headed the Drug Development Group for the intramural research program of the NIH for 14 years. He is a world class scientist with over 220 peer-reviewed publications and multiple scientific awards and honors.

- **Dr. James Cook** is a Distinguished Professor of Chemistry at University Wisconsin-Milwaukee where he co-leads a group of scientists who have synthesized and tested a broad series of novel drugs that display GABA-A receptor subtype selectivity and pharmacological specificity. He is a leading expert in $GABA_A$ receptor drug targeting with more than 40 years' experience in organic and medicinal chemistry and more than 480 scientific publications and 50 patents.

- **Dr. Cerne** has served as a Senior Research Scientist at RespireRx, since October 2020. Concurrently, he is an adjunct faculty member in the Department of Anatomy, Cell Biology, and Physiology of Indiana University, a partner at the Center for Experimental Clinical Physiology of Ljubljana University with a focus on systems biology and assists the HEAL Initiative of NIH which targets opioid epidemics. From 2011 – 2018, Dr. Cerne directed an ion channel drug discovery group at the Lilly Research Labs that discovered multiple analgesics and antiepileptics including novel glutamate and GABA receptor neuromodulators. Several of these compounds entered clinical development. Prior to Eli Lilly, he headed a pharmacology lab at RedPoint Bio where he worked on TRP channel targets. His efforts were crucial for bringing a TRPM5 modulator into human studies and led to the filing of multiple patents. His earlier research efforts targeted the discovery of novel analgesicsand the mechanisms of initiation and spread of epileptic seizures (Duke University). Dr. Cerne is a senior biopharmaceutical professional with 32 years of experience in the area of neuroscience research, out of which 19 were devoted to ion channel drug discovery in industrial settings. His electrophysiological studies in isolated neurons, native and human tissue were key to establishing the α2/3-selective GABAkine, KRM-II-81, as a potential drug candidate for epilepsy, chronic pain, and other areas of therapeutic need.

RespireRx Pharmaceuticals Inc

OTCQB: RSPI

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