UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-Q

[X] QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the quarterly period ended March 31, 2020

[ ] TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

Commission file number: 1-16467

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

Delaware	**33-0303583**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification Number)

126 Valley Road, Suite C
Glen Rock, New Jersey 07452
(Address of principal executive offices)

(201) 444-4947
(Registrant's telephone number, including area code)

Not applicable
(Former name, former address and former fiscal year, if changed since last report)

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 (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.

Yes [X] No [ ]

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files).

Yes [X] No [ ]

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer [ ]

Accelerated filer [ ]

Non-accelerated filer [ ]

Smaller reporting company [X]

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. [ ]

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).
Yes [ ] No [X]

As of May 19, 2020, the Company had 69,395,805, shares of common stock, $0.001 par value, issued and outstanding.

RESPIRERX PHARMACEUTICALS INC.
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Cautionary Note Regarding Forward-Looking Statements

This Quarterly Report on Form 10-Q of RespireRx Pharmaceuticals Inc. ("RespireRx" and together with RespireRx's wholly-owned subsidiary, Pier Pharmaceuticals, Inc. ("Pier"), the "Company") 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, and (v) 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 this Quarterly Report on Form 10-Q and the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2019, including the section entitled "Item 1A. Risk Factors." 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.

PART I - FINANCIAL INFORMATION

ITEM 1. CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

RESPIRERX PHARMACEUTICALS INC.
AND SUBSIDIARY

CONDENSED CONSOLIDATED BALANCE SHEETS

	March 31, 2020 (unaudited)	December 31, 2019
ASSETS		
Current assets:		
Cash and cash equivalents	$ 81	$ 16,690
Prepaid expenses	100,029	28,638
Total current assets	100,110	45,328
Total assets	$ 100,110	$ 45,328
LIABILITIES AND STOCKHOLDERS' DEFICIENCY		
Current liabilities:		
Accounts payable and accrued expenses, including $525,646 and $476,671 payable to related parties at March 31, 2020 and December 31, 2019, respectively	$ 4,085,127	$ 3,772,030
Accrued compensation and related expenses	1,968,625	2,083,841
Convertible notes payable, currently due and payable on demand, including accrued interest of $76,018 and $113,304 at March 31, 2020 and December 31, 2019, respectively of which $44,948 and $43,666, was deemed to be in default at March 31, 2020 and December 31, 2019 (Note 4)	364,966	551,591
Note payable to SY Corporation, including accrued interest of $375,241 and $363,280 at March 31, 2020 and December 31, 2019, respectively (payment obligation currently in default – Note 4)	739,639	766,236
Notes payable to officer, including accrued interest of $38,204 and $35,388 as of March 31, 2020 and December 31, 2019, respectively (Note 4)	146,304	142,238
Notes payable to former officer, including accrued interest of $46,189 and $41,977 as of March 31, 2020 and December 31, 2019, respectively (Note 4)	173,789	169,577
Other short-term notes payable	73,079	4,634
Total current liabilities	7,551,529	7,490,147
Commitments and contingencies (Note 8)		
Stockholders' deficiency: (Note 6)		
Series B convertible preferred stock, $0.001 par value; $0.6667 per share liquidation preference; aggregate liquidation preference $25,001; shares authorized: 37,500; shares issued and outstanding: 11; common shares issuable upon conversion at 0.00030 common shares per Series B share	21,703	21,703
Common stock, $0.001 par value; shares authorized: 65,000,000; shares issued and outstanding: 33,693,853 at March 31, 2020 and 4,175,072 at December 31, 2019, respectively (Note 2 and Note 9)	33,694	4,175
Additional paid-in capital	159.948,987	159,038,388
Accumulated deficit	(167,455,803)	(166,509,085)
Total stockholders' deficiency	(7,451,419)	(7,444,819)
Total liabilities and stockholders' deficiency	$ 100,110	$ 45,328

See accompanying notes to condensed consolidated financial statements (unaudited).

RESPIRERX PHARMACEUTICALS INC.
AND SUBSIDIARY

CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
(Unaudited)

	Three-months Ended March 31,	
	2020	**2019**
Operating expenses:		
General and administrative, including $117,359 and $121,200 to related parties for the three-months ended March 31, 2020 and 2019, respectively	365,280	324,513
Research and development, including $121,900 and $122,509 to related parties for the three-months ended March 31, 2020 and 2019, respectively	155,290	149,350
Total operating costs and expenses	520,570	473,863
Loss from operations	(520,570)	(473,863)
Loss on extinguishment of debt in exchange for equity	(323,996)	-
Interest expense, including $2,816 and $2,533 to related parties for the three-months ended March 31, 2020 and 2019, respectively	(140,710)	(81,112)
Foreign currency transaction gain (loss)	38,558	14,643
Net loss attributable to common stockholders	$ (946,718)	$ (540,332)
Net loss per common share - basic and diluted	$ (0.14)	$ (0.14)
Weighted average common shares outstanding - basic and diluted	6,686,602	3,872,076

See accompanying notes to condensed consolidated financial statements (unaudited).

RESPIRERX PHARMACEUTICALS INC.
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CONDENSED CONSOLIDATED STATEMENTS OF STOCKHOLDERS' DEFICIENCY
(Unaudited)

Three-months Ended March 31, 2020

	Series B Convertible Preferred Stock		Common Stock		Additional Paid-in Capital	Accumulated Deficit	Total Stockholders' Deficiency
	Shares	Amount	Shares	Par Value			
Balance, December 31, 2019	37,500	$ 21,703	4,175,072	$ 4,175	$159,038,388	$(166,509,085)	$ (7,444,819)
Issuances of common stock	-	-	29,518,781	29,519	910,599	-	940,118
Net loss						(946,718)	(946,718)
Balance, March 31, 2020	37,500	$ 21,703	33,693,853	$ 33,694	$159,948,987	$(167,455,803)	$ (7,451,419)

Three-months Ended March 31, 2019

	Series B Convertible Preferred Stock		Common Stock		Additional Paid-in Capital	Accumulated Deficit	Total Stockholders' Deficiency
	Shares	Amount	Shares	Par Value			
Balance, December 31, 2018	37,500	$ 21,703	3,872,076	$ 3,872	$158,681,034	$(164,394,052)	$ (5,733,255)
Value of common stock options issued to consultants			-		45,812		45,812
Net loss						(540,332)	(540,332)
Balance, March 31, 2019	37,500	$ 21,703	3,872,076	$ 3,872	$158,681,034	$(164,934,384)	$ (6,227,775)

See accompanying notes to condensed consolidated financial statements (unaudited).

RESPIRERX PHARMACEUTICALS INC.
AND SUBSIDIARY

CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(Unaudited)

	Three-months Ended March 31,	
	2020	**2019**
Cash flows from operating activities:		
Net loss	$ (946,718)	$ (540,332)
Adjustments to reconcile net loss to net cash used in operating activities:		
Loss on extinguishment of debt	323,996	-
Amortization of original issue discount to interest expense	102,806	52,851
Stock-based compensation and fees included in -		
General and administrative expenses	-	-
Foreign currency transaction (gain) loss	(38,558)	(14,643)
Changes in operating assets and liabilities:		
(Increase) decrease in -		
Prepaid expenses	(71,390)	(48,370)
Increase (decrease) in -		
Accounts payable and accrued expenses	313,097	138,561
Accrued compensation and related expenses	190,784	195,300
Accrued interest payable	108,124	78,847
Net cash used in operating activities	(17,859)	(137,786)
Cash flows from financing activities:		
Proceeds from officer notes	1,250	-
Borrowings on short-term notes payable	-	110,000
Net cash provided by financing activities	1,250	110,000
Cash and cash equivalents:		
Net decrease	(16,609)	(27,786)
Balance at beginning of period	16,690	33,284
Balance at end of period	$ 81	$ 5,498

(Continued)

RESPIRERX PHARMACEUTICALS INC.
AND SUBSIDIARY

CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(Unaudited)

(Continued)

	Three-months Ended March 31,	
	2020	**2019**
Supplemental disclosures of cash flow information:		
Cash paid for -		
Interest	$ -	$ 71
Income taxes	$ -	$ -
Non-cash financing activities:		
Short-term note payable issued in connection with financing of directors and officers insurance policy	$ 70,762	$ 61,746
Extinguishment of Convertible Notes Payable	$ -	$ -
Issuance of common stock in exchange for extinguishment of Convertible Notes Payable	$ 634,118	$ -
Issuance of common stock in payment of accrued compensation	$ 306,000	
Issuance of common stock for converted notes	$ 257,970	

See accompanying notes to condensed consolidated financial statements (unaudited).

RESPIRERX PHARMACEUTICALS INC.
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NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

1. Organization and Basis of Presentation

Organization

RespireRx Pharmaceuticals Inc. ("RespireRx") was formed in 1987 under the name Cortex Pharmaceuticals, Inc. to engage in the discovery, development and commercialization of innovative pharmaceuticals for the treatment of neurological and psychiatric disorders. On December 16, 2015, RespireRx filed a Certificate of Amendment to its Second Restated Certificate of Incorporation with the Secretary of State of the State of Delaware to amend its Second Restated Certificate of Incorporation to change its name from Cortex Pharmaceuticals, Inc. to RespireRx Pharmaceuticals Inc. While developing potential applications for respiratory disorders, notably dronabinol, a cannabinoid, for the treatment of obstructive sleep apnea as discussed in further detail below, RespireRx has retained and expanded its ampakine intellectual property and data with respect to neurological and psychiatric disorders and is considering developing certain potential products in this platform, subject to raising additional financing and/or strategic relationships, of which no assurance can be provided. On March 2, 2020, RespireRx entered into an option agreement between the Company and the UWM Research Foundation, Inc. ("UWMRF"), an affiliate of the University of Wisconsin-Milwaukee (the "UWMRF Option Agreement"), to license the intellectual property associated with a program involving positive allosteric modulators ("PAMs") of the gamma-amino-butyric acid type A ("GABA-A") receptors. Together, the ampakine program and the GABA-A program will be the foundation of a neuromodulator program that the Company is currently calling Project Endeavor.

In August 2012, RespireRx acquired Pier Pharmaceuticals, Inc. ("Pier"), which is now its wholly-owned subsidiary.

Basis of Presentation

The condensed consolidated financial statements are of RespireRx and its wholly-owned subsidiary, Pier (collectively referred to herein as the "Company," "we" or "our," unless the context indicates otherwise). The condensed consolidated financial statements of the Company at March 31, 2020 and for the three-months ended March 31, 2020 and 2019, are unaudited. In the opinion of management, all adjustments (including normal recurring adjustments) have been made that are necessary to present fairly the condensed consolidated financial position of the Company as of March 31, 2020, the results of its condensed consolidated operations for the three-months ended March 31, 2020 and 2019, changes in its condensed consolidated statements of stockholders' deficiency for the three-months ended March 31, 2020 and 2019 and its condensed consolidated cash flows for the three-months ended March 31, 2020 and 2019. Condensed consolidated operating results for the interim periods presented are not necessarily indicative of the results to be expected for a full fiscal year. The consolidated balance sheet at December 31, 2019 has been derived from the Company's audited consolidated financial statements at such date.

The condensed consolidated financial statements and related notes have been prepared pursuant to the rules and regulations of the Securities and Exchange Commission (the "SEC"). Accordingly, certain information and note disclosures normally included in financial statements prepared in accordance with generally accepted accounting principles have been omitted pursuant to such rules and regulations. These condensed consolidated financial statements should be read in conjunction with the consolidated financial statements and other information included in the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2019, as filed with the SEC.

2. Business

The mission of the Company is to develop innovative and revolutionary treatments to combat disorders caused by disruption of neuronal signaling. We are developing treatment options that address conditions that affect millions of people, but for which there are few or poor treatment options, including obstructive sleep apnea ("OSA"), attention deficit hyperactivity disorder ("ADHD") and recovery from spinal cord injury ("SCI"), as well as certain neurological orphan diseases such as Fragile X Syndrome ("FXS"). We are developing a pipeline of new drug products based on our broad patent portfolios for two drug platforms: (i) cannabinoids, including dronabinol (a synthetic form of Δ9-tetrahydrocannabinol ("Δ9-THC")) that act upon the nervous system's endogenous cannabinoid receptors and (ii) neuromodulators, which under Project Endeavor, include (a) ampakines, proprietary compounds that positively modulate AMPA-type glutamate receptors to promote neuronal function and (b) PAMs of GABA-A receptors that are the subject of the UWMRF Option Agreement.

Cannabinoids

With respect to the cannabinoid platform, two Phase 2 clinical trials have been completed demonstrating the ability of dronabinol to statistically significantly reduce the symptoms of OSA, which management believes is potentially a multi-billion-dollar market. Subject to raising sufficient financing (of which no assurance can be provided), we believe that we have put most of the necessary pieces into place to rapidly initiate a Phase 3 clinical trial program. By way of definition, when a new drug is allowed by the United States Food and Drug Administration ("FDA") to be tested in humans, Phase 1 clinical trials are conducted in healthy people to determine safety and pharmacokinetics. If successful, Phase 2 clinical trials are conducted in patients to determine safety and preliminary efficacy. Phase 3 trials, large scale studies to determine efficacy and safety, are the final step prior to seeking FDA approval to market a drug.

With the cannabinoid platform, we plan to create a wholly-owned private subsidiary of RespireRx (“Newco”, official name not yet determined) with its own management team and board of directors.

Neuromodulators – Project Endeavor - Ampakines and GABA-A

Neurotransmitters are chemicals released by neurons that enable neurons to communicate with one another. This process is called neurotransmission. Neurons release neurotransmitters that attach to a very specific protein structure, termed a receptor, residing on an adjacent neuron. This neurotransmission process can either increase or decrease the excitability of the neuron receiving the message.

Neuromodulators do not act directly at the neurotransmitter binding site, but instead act at accessory sites that enhance (Positive Allosteric Modulators – “PAMs”) or reduce (Negative Allosteric Modulators – “NAMs”) the actions of neurotransmitters at their primary receptor sites. Neuromodulators have no intrinsic activity of their own. We believe that neuromodulators offer the possibility of developing “kinder and gentler” neuropharmacological drugs with greater pharmacological specificity and reduced side effects compared to present drugs, especially in disorders for which there is a significant unmet or poorly met clinical need such as ADHD”, SCI, Autism Spectrum Disorder (“ASD”), FXS and CNS-driven disorders. We are focused presently on developing drugs that act as PAMs at the AMPA and GABA-A receptors.

Building upon our ampakine platform as a foundation, we also are planning the establishment of a second business unit, which we now call collectively with the ampakines, Project Endeavor, that will focus on developing novel neuromodulators for disorders due to alterations in neurotransmission.

Through an extensive ampakine 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. From our ampakine platform, our lead clinical compounds, CX717 and CX1739, have successfully completed multiple Phase 1 safety trials. Both compounds have also completed Phase 2 efficacy trials demonstrating target engagement, by antagonizing the ability of opioids to induce respiratory depression. CX717 has successfully completed a Phase 2 trial demonstrating the ability to statistically significantly reduce the symptoms of adult ADHD. In an early Phase 2 study, CX1739 improved breathing in patients with central sleep apnea. Preclinical studies have highlighted the potential ability of these ampakines to improve motor function in animals with spinal injury. Subject to raising sufficient financing (of which no assurance can be provided), we believe that we will be able to rapidly initiate a human Phase 2 study with CX1739 and/or CX717 in patients with spinal cord injury and a human Phase 2B study in patients with ADHD with either CX717 or CX1739.

In order to expand the asset base of Project Endeavor, we have entered into an option agreement with UWMRF whereby RespireRx has a six-month option commencing on March 2, 2020, to license certain intellectual property regarding chemical compounds that act as PAMs at receptors for GABA-A, a major inhibitory transmitter in the brain.

Certain of these compounds have shown impressive activity in a broad range of animal models of refractory/resistant epilepsy and other convulsant disorders, as well as in brain tissue samples obtained from epileptic patients in research conducted at the University of Wisconsin-Milwaukee by Drs. James Cook and Jeffrey Witkin among others and at collaborating institutions. Epilepsy is a chronic and highly prevalent neurological disorder that affects millions of people world-wide. While many anticonvulsant drugs have been approved to decrease seizure probability, seizures are not well controlled and, in as many as 60-70% of patients, existing drugs are not efficacious at some point in the disease progression. We believe that the medical and patient community are in clear agreement that there is desperate need for improved antiepileptic drugs. In addition, these compounds have shown positive activity in animal models of migraine, inflammatory and neuropathic pain, as well as other areas of interest. Because of their GABA receptor subunit specificity, the compounds have a greatly reduced liability to produce sedation, motor incoordination, memory impairments and tolerance, side effects commonly associated with non-specific GABA PAMs, such as benzodiazepines.

Financing our Platforms

Our major challenge has been to raise substantial equity or equity-linked financing to support research and development programs for our two drug platforms, while minimizing the dilutive effect to pre-existing stockholders. At present, we believe that we are hindered primarily by our public corporate structure, our OTCQB listing, limited float and low market capitalization as a result of our low stock price. For this reason, the Company is considering an internal restructuring plan that contemplates spinning out our two drug platforms into separate operating businesses.

We believe that by creating Newco and Project Endeavor, it may be possible, through separate finance channels, to optimize the asset values of both the cannabinoid platform and the neuromodulator platform.

Going Concern

The Company's condensed consolidated financial statements have been presented on the basis that it is a going concern, which contemplates the realization of assets and satisfaction of liabilities in the normal course of business. The Company has incurred net losses of $946,718 for the three-months ended March 31, 2020 and $2,115,033 for the fiscal year ended December 31, 2019, as well as negative operating cash flows of $17,859 for the three-months ended March 31, 2020 and $487,745 for the fiscal year ended December 31, 2019. The Company also had a stockholders' deficiency of $7,451,419 at March 31, 2020 and expects to continue to incur net losses and negative operating cash flows for at least the next few years. As a result, management has concluded that there is substantial doubt about the Company's ability to continue as a going concern, and the Company's independent registered public accounting firm, in its report on the Company's consolidated financial statements for the year ended December 31, 2019, expressed substantial doubt about the Company's ability to continue as a going concern.

The Company is currently, and has for some time, been in significant financial distress. It has extremely limited cash resources and current assets and has no ongoing source of sustainable revenue. Management is continuing to address various aspects of the Company's operations and obligations, including, without limitation, debt obligations, financing requirements, intellectual property, licensing agreements, legal and patent matters and regulatory compliance, and has taken steps to continue to raise new debt and equity capital to fund the Company's business activities from both related and unrelated parties.

The Company is continuing its efforts to raise additional capital in order to be able to pay its liabilities and fund its business activities on a going forward basis, including the pursuit of the Company's planned research and development activities. The Company regularly evaluates various measures to satisfy the Company's liquidity needs, including development and other agreements with collaborative partners and, when necessary, seeking to exchange or restructure the Company's outstanding securities. The Company is evaluating certain changes to its operations and structure to facilitate raising capital from sources that may be interested in financing only discrete aspects of the Company's development programs. Such changes could include a significant reorganization, which may include the formation of one or more subsidiaries into which one or more programs may be contributed. As a result of the Company's current financial situation, the Company has limited access to external sources of debt and equity financing. Accordingly, there can be no assurances that the Company will be able to secure additional financing in the amounts necessary to fully fund its operating and debt service requirements. If the Company is unable to access sufficient cash resources, the Company may be forced to discontinue its operations entirely and liquidate.

3. Summary of Significant Accounting Policies

Principles of Consolidation

The accompanying condensed consolidated financial statements are prepared in accordance with United States generally accepted accounting principles ("GAAP") and include the financial statements of RespireRx and its wholly-owned subsidiary, Pier. Intercompany balances and transactions have been eliminated in consolidation.

Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions. These estimates and assumptions affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Significant estimates include, among other things, accounting for potential liabilities, and the assumptions used in valuing stock-based compensation issued for services. Actual amounts may differ from those estimates.

Concentration of Credit Risk

Financial instruments that potentially subject the Company to concentrations of credit risk consist primarily of cash and cash equivalents. The Company limits its exposure to credit risk by investing its cash with high quality financial institutions. The Company's cash balances may periodically exceed federally insured limits. The Company has not experienced a loss in such accounts to date.

Value of Financial Instruments

The authoritative guidance with respect to value of financial instruments established a value hierarchy that prioritizes the inputs to valuation techniques used to measure value into three levels and requires that assets and liabilities carried at value be classified and disclosed in one of three categories, as presented below. Disclosure as to transfers into and out of Levels 1 and 2, and activity in Level 3 value measurements, is also required.

Level 1. Observable inputs such as quoted prices in active markets for an identical asset or liability that the Company has the ability to access as of the measurement date. Financial assets and liabilities utilizing Level 1 inputs include active-exchange traded securities and exchange-based derivatives.

Level 2. Inputs, other than quoted prices included within Level 1, which are directly observable for the asset or liability or indirectly observable through corroboration with observable market data. Financial assets and liabilities utilizing Level 2 inputs include fixed income securities, non-exchange based derivatives, mutual funds, and fair-value hedges.

Level 3. Unobservable inputs in which there is little or no market data for the asset or liability which requires the reporting entity to develop its own assumptions. Financial assets and liabilities utilizing Level 3 inputs include infrequently-traded, non-exchange-based derivatives and commingled investment funds, and are measured using present value pricing models.

The Company determines the level in the value hierarchy within which each value measurement falls in its entirety, based on the lowest level input that is significant to the value measurement in its entirety. In determining the appropriate levels, the Company performs an analysis of the assets and liabilities at each reporting period end.

The carrying amounts of financial instruments (consisting of cash, cash equivalents, and accounts payable and accrued expenses) are considered by the Company to be representative of the respective values of these instruments due to the short-term nature of those instruments. With respect to the note payable to SY Corporation (as defined below) and the convertible notes payable, management does not believe that the credit markets have materially changed for these types of borrowings since the original borrowing date. The Company considers the carrying amounts of the notes payable to officers, inclusive of accrued interest, to be representative of the respective values of such instruments due to the short-term nature of those instruments and their terms.

Deferred Financing Costs

Costs incurred in connection with ongoing debt and equity financings, including legal fees, are deferred until the related financing is either completed or abandoned.

Costs related to abandoned debt or equity financings are charged to operations in the period of abandonment. Costs related to completed equity financings are netted against the proceeds.

Capitalized Financing Costs

The Company presents debt issuance costs related to debt obligations in its consolidated balance sheet as a direct deduction from the carrying amount of that debt obligation, consistent with the presentation for debt discounts.

Convertible Notes Payable

Convertible notes are evaluated to determine if they should be recorded at amortized cost. To the extent that there are associated warrants or a beneficial conversion feature, the convertible notes and warrants are evaluated to determine if there are embedded derivatives to be identified, bifurcated and valued in connection with and at the time of such financing.

Notes Exchanges

In cases where debt or other liabilities are exchanged for equity, the Company compares the carrying value of debt, inclusive of accrued interest, if applicable, being exchanged, to the value of the equity issued and records any loss or gain as a result of such exchange. See Note 4. Notes Payable.

Extinguishment of Debt and Settlement of Liabilities

The Company accounts for the extinguishment of debt and settlement of liabilities by comparing the carrying value of the debt or liability to the value of consideration paid or assets given up and recognizing a loss or gain in the condensed consolidated statement of operations in the amount of the difference in the period in which such transaction occurs.

Prepaid Insurance

Prepaid insurance represents the premium paid in March 2020 for directors and officers insurance, as well as the amortized amount of an April 2019 premium payment for office-related insurances and clinical trial coverage. Directors' and officers' insurance tail coverage, purchased in March 2013 expired in March 2020 and all prepaid amounts have been fully amortized. The amounts of prepaid insurance amortizable in the ensuing twelve-month period is recorded as prepaid insurance in the Company's consolidated balance sheet at each reporting date and amortized to the Company's consolidated statement of operations for each reporting period.

Stock-Based Awards

The Company periodically issues common stock and stock options to officers, directors, Scientific Advisory Board members, consultants and vendors for services rendered. Such issuances vest and expire according to terms established at the issuance date of each grant.

The Company accounts for stock-based payments to officers, directors, outside consultants and vendors by measuring the cost of services received in exchange for equity awards based on the grant date value of the awards, with the cost recognized as compensation expense on the straight-line basis in the Company's consolidated financial statements over the vesting period of the awards.

Stock grants, which are sometimes subject to time-based vesting, are measured at the grant date fair value and charged to operations ratably over the vesting period.

Stock options granted to members of the Company's outside consultants and other vendors are valued on the grant date. As the stock options vest, the Company recognizes this expense over the period in which the services are provided.

The value of stock options granted as stock-based payments is determined utilizing the Black-Scholes option-pricing model, and is affected by several variables, the most significant of which are the life of the equity award, the exercise price of the stock option as compared to the fair market value of the common stock on the grant date, and the estimated volatility of the common stock over the term of the equity award. Estimated volatility is based on the historical volatility of the Company's common stock. The risk-free interest rate is based on the U.S. Treasury yield curve in effect at the time of grant. The fair market value of common stock is determined by reference to the quoted market price of the Company's common stock.

Stock options and warrants issued to non-employees as compensation for services to be provided to the Company or in settlement of debt are accounted for based upon the fair value of the services provided or the estimated fair value of the stock option or warrant, whichever can be more clearly determined. Management uses the Black-Scholes option-pricing model to determine the fair value of the stock options and warrants issued by the Company. The Company recognizes this expense over the period in which the services are provided.

There were no stock or stock option grants during the three-months ended March 31, 2020.

On March 22, 2020, two executive officers forgave a portion of their accrued compensation and received restricted stock equal in value to the compensation forgiven.

The Company recognizes the value of stock-based payments in general and administrative costs and in research and development costs, as appropriate, in the Company's condensed consolidated statements of operations. The Company issues new shares of common stock to satisfy stock option and warrant exercises. There were no stock options exercised during the three-months ended March 31, 2020 and 2019, respectively.

Income Taxes

The Company accounts for income taxes under an asset and liability approach for financial accounting and reporting for income taxes. Accordingly, the Company recognizes deferred tax assets and liabilities for the expected impact of differences between the financial statements and the tax basis of assets and liabilities.

The Company records a valuation allowance to reduce its deferred tax assets to the amount that is more likely than not to be realized. In the event the Company was to determine that it would be able to realize its deferred tax assets in the future in excess of its recorded amount, an adjustment to the deferred tax assets would be credited to operations in the period such determination was made. Likewise, should the Company determine that it would not be able to realize all or part of its deferred tax assets in the future, an adjustment to the deferred tax assets would be charged to operations in the period such determination was made.

Pursuant to Internal Revenue Code Sections 382 and 383, use of the Company's net operating loss and credit carryforwards may be limited if a cumulative change in ownership of more than 50% occurs within any three-year period since the last ownership change. The Company may have had a change in control under these Sections. However, the Company does not anticipate performing a complete analysis of the limitation on the annual use of the net operating loss and tax credit carryforwards until the time that it anticipates it will be able to utilize these tax attributes.

As of March 31, 2020, the Company did not have any unrecognized tax benefits related to various federal and state income tax matters and does not anticipate any material amount of unrecognized tax benefits within the next 12 months.

The Company is subject to U.S. federal income taxes and income taxes of various state tax jurisdictions. As the Company's net operating losses have yet to be utilized, all previous tax years remain open to examination by Federal authorities and other jurisdictions in which the Company currently operates or has operated in the past.

The Company accounts for uncertainties in income tax law under a comprehensive model for the financial statement recognition, measurement, presentation and disclosure of uncertain tax positions taken or expected to be taken in income tax returns as prescribed by GAAP. The tax effects of a position are recognized only if it is "more-likely-than-not" to be sustained by the taxing authority as of the reporting date. If the tax position is not considered "more-likely-than-not" to be sustained, then no benefits of the position are recognized. As of March 31, 2020, the Company had not recorded any liability for uncertain tax positions. In subsequent periods, any interest and penalties related to uncertain tax positions will be recognized as a component of income tax expense.

Foreign Currency Transactions

The note payable to SY Corporation (as defined below), which is denominated in a foreign currency (the South Korean Won), is translated into the Company's functional currency (the United States Dollar) at the exchange rate on the balance sheet date. The foreign currency exchange gain or loss resulting from translation is recognized in the related condensed consolidated statements of operations.

Research and Development

Research and development costs include compensation paid to management directing the Company's research and development activities, including but not limited to compensation paid to our then Interim Chief Executive Officer and Interim President who is also our Chief Scientific Officer and fees paid to consultants and outside service providers and organizations (including research institutes at universities), and other expenses relating to the acquisition, design, development and clinical testing of the Company's treatments and product candidates.

License Agreements

Obligations incurred with respect to mandatory payments provided for in license agreements are recognized ratably over the appropriate period, as specified in the underlying license agreement, and are recorded as liabilities in the Company's condensed consolidated balance sheet, with a corresponding charge to research and development costs in the Company's condensed consolidated statement of operations. Obligations incurred with respect to milestone payments provided for in license agreements are recognized when it is probable that such milestone will be reached and are recorded as liabilities in the Company's condensed consolidated balance sheet, with a corresponding charge to research and development costs in the Company's condensed consolidated statement of operations. Payments of such liabilities are made in the ordinary course of business.

Patent Costs

Due to the significant uncertainty associated with the successful development of one or more commercially viable products based on the Company's research efforts and any related patent applications, all patent costs, including patent-related legal and filing fees, are expensed as incurred and recorded as general and administrative expenses.

Earnings per Share

The Company's computation of earnings per share ("EPS") includes basic and diluted EPS. Basic EPS is measured as the income (loss) attributable to common stockholders divided by the weighted average common shares outstanding for the period. Diluted EPS is similar to basic EPS but presents the dilutive effect on a per share basis of potential common shares (e.g., warrants and options) as if they had been converted at the beginning of the periods presented, or issuance date, if later. Potential common shares that have an anti-dilutive effect (i.e., those that increase income per share or decrease loss per share) are excluded from the calculation of diluted EPS.

Net loss attributable to common stockholders consists of net loss, as adjusted for actual and deemed preferred stock dividends declared, amortized or accumulated.

Loss per common share is computed by dividing net loss by the weighted average number of shares of common stock outstanding during the respective periods. Basic and diluted loss per common share is the same for all periods presented because all warrants and stock options outstanding are anti-dilutive.

At March 31, 2020 and 2019, the Company excluded the outstanding securities summarized below, which entitle the holders thereof to acquire shares of common stock, from its calculation of earnings per share, as their effect would have been anti-dilutive.

	March 31,	
	2020	**2019**
Series B convertible preferred stock	11	11
Convertible notes payable	126,537,571	16,893
Common stock warrants	2,191,043	1,874,828
Common stock options	4,286,071	4,337,609
Total	133,014,696	6,229,341

Reclassifications

Certain comparative figures in 2019 have been reclassified to conform to the current quarter's presentation. These reclassifications were immaterial, both individually and in the aggregate.

Recent Accounting Pronouncements

In March 2020, The FASB issued Accounting Standards Update No. 2020-03, Codification Improvements to Financial Instruments. There are seven issues addressed in this update. Issues 1 through 5 were clarifications and codifications of previous updates. Issue 3 relates only to depository and lending institutions and therefore would not be applicable to the Company. Issue 6 was a clarification on determining the contractual term of a net investment in a lease for purposes of measuring expected credit losses, an issue not applicable to the Company. Issue 7 relates to the regaining control of financial assets sold and the recordation of an allowance for credit losses. The amendment related to issues 1, 2, 4 and 5 become effective immediately upon adoption of the update. Issue 3 becomes effective for fiscal years beginning after December 15, 2019. Issues 6 and 7 become effective on varying dates that relate to the dates of adoption other updates. Management's initial analysis is that it does not believe the new guidance will substantially impact the Company's financial statements.

4. Notes Payable

Convertible Notes Payable

2019 Convertible Notes

On November 4, 2019, October 22, 2019, August 19, 2019, May 17, 2019 and April 24, 2019, the Company issued a series of convertible notes ("2019 Convertible Notes"), all similar in nature, all subject to debt issuance costs ("DIC") and original issue discount ("OID") and beneficial conversion ("BCF") features and some subject to the issuance of warrants ("NW") and/or commitment shares ("CS") and placement agent fees. Two of the notes had maturity dates nine months after issuance and three were for one year. One note was a master note agreement in the amount of $150,000, but with an initial drawdown of $50,000. The Company evaluated all of the terms of the 2019 Convertible Notes and determined that, in accordance with ASC 815, there were no derivatives to be bifurcated or separately valued. The 2019 Convertible Notes as of March 31, 2020 are summarized in the table below.

Inception date	Maturity date	Original principal amount	Interest rate	Original aggregate DIC, OID, BCF, NW and CS	Cumulative amortization of DIC, OID, BCF, NW and CS	Principal remaining at March 31, 2020	Accrued Interest at March 31, 2020	Balance sheet carrying amount at March 31, 2020 inclusive of accrued interest
November 4, 2019	November 4, 2020	$170,000	10%	$170,000	$ 69,208	$ 170,000	$ 6,940	$ 76,147
October 22, 2019	July 22, 2020	$ 60,000	10%(1)	$ 64,003	$ 37,038	$ 60,000	$ 2,663	$ 35,698(2)
August 19, 2019	May 19, 2020	$ 55,000	10%	$ 55,000	$ 44,507	$ 46,850	$ 3,337	$ 39,695
May 17, 2019	May 17, 2020	$ 50,000	10%	$ 50,000	$ 45,396	$ 44,952	$ 4,355	$ 44,704
April 24, 2019	April 24, 2020	$ 58,500	12%	$ 48,450	$ 48,450	$ 0	$ 0	$ 0
	Total	$393,500		$387,453	$ 244,599	$ 321,802	$ 17,296	$196,244

(1) Rate adjusted to 12% on April 24, 2020 in accordance with terms of the related note.
(2) $25,000 added to principal subsequent to March 31, 2020 in accordance with terms of related note.

2018 Q4 and 2019 Q1 Notes and Original Convertible Notes

On December 6, 2018, December 7, 2018 and December 31, 2018 the Company issued convertible notes (each a "2018 Q4 Note") and on January 2, 2019, February 27, 2019, March 6, 2019 and March 14, 2019, the Company issued additional convertible notes (each a "2019 Q1 Note", respectively and collectively with the "2018 Q4, the "2018 Q4 and 2019 Q1 Notes") bearing interest at 10% per year. All of the 2018 Q4 and 2019 Q1 Notes matured on either February 28, 2019 or April 30, 2019. The original aggregate principal amount was $190,000. None of the 2018 Q4 and 2019 Q1 Notes were repaid at maturity. The 2018 Q4 and 2019 Q1 Note investors also received an aggregate of 190,000 common stock purchase warrants. The warrants were valued using the Black Scholes option pricing model calculated on the date of each grant and had an aggregate value of $146,805. Total value received by the investors was $336,805, the sum of the face value of the convertible note and the value of the warrant. Therefore, the Company recorded a debt discount associated with the warrant issuance of $82,159 and an initial value of the convertible notes of $107,841 using the relative fair value method. All debt discounts were fully amortized by the original maturity dates. On March 21, 2020, all except one of the 2018 Q4 and 2019 Q1 Note holders exchanged the outstanding principal amount and accrued interest for shares of common stock. The exchange price was $0.015 per share of common stock. The closing price on March 20, 2020, the last trading day before the closing of the exchange agreements which took place on a Saturday, was $0.034 per share of common stock. An aggregate of $155,000 of principal and $17,911 of accrued interest was exchanged for 11,527,407 shares of common stock. The Company recorded a loss on the extinguishment of the exchanged 2018 Q4 Notes and 2019 Q1 Notes of $219,021. There remains one outstanding 2018 Q4 Note and one outstanding 2019 Q1 Note, both held by a single investor, with an aggregate principal amount of $35,000 and aggregate accrued interest of $4,340 as of March 31, 2020. The 2019 Convertible Notes discussed above, which the Company does not consider to have arisen from one or more offerings, may be interpreted in such a way that the remaining 2018 Q4 Note and 2019 Q1 Note holders had the right to convert or exchange into such notes. However, no holder of the Q4 2018 and 2019 Notes has requested such a conversion or exchange. The Company does not believe that an offering occurred as of March 31, 2020 or as of the date of the issuance of these financial statements. Therefore, the number of shares of common stock (or preferred stock) into which the remaining 2018 Q4 Note and the remaining 2019 Q1 Note may convert is not determinable and the Company has not accounted for any additional consideration. The warrants to purchase 190,000 shares of common stock issued in connection with the sale of the 2018 Q4 and 2019 Q1 Notes are exercisable at a fixed price of $1.50 per share of common stock, provide no right to receive a cash payment, and included no reset rights or other protections based on subsequent equity transactions, equity-linked transactions or other events. The warrants issued to the Q4 2018 and Q1 2019 Note holders expire on December 30, 2023. The Company determined that there were no embedded derivatives to be identified, bifurcated and valued in connection with this financing.

The 2018 Q4 Notes and 2019 Q1 Notes consist of the following at March 31, 2020 and December 31, 2019:

	March 31, 2020	December 31, 2019
Principal amount of notes payable	$ 35,000	$ 190,000
Discount associated with issuance of warrants net of amortization	-	-
Accrued interest payable	4,340	17,976
	$ 39,340	$ 207,976

Other convertible notes were also sold to investors in 2014 and 2015 ("Original Convertible Notes), which aggregated a total of $579,500, and had a fixed interest rate of 10% per annum. The Original Convertible Notes have no reset rights or other protections based on subsequent equity transactions, equity-linked transactions or other events. The warrants to purchase shares of common stock issued in connection with the sale of the convertible notes have either been exchanged as part of April and May 2016 note and warrant exchange agreements or expired on September 15, 2016.

On March 21, 2020, the holder of one of the Original Convertible Notes, exchanged $50,000 of principal and $32,875 of accrued interest for 5,525,017 shares of the Company's common stock. The exchange price was $0.015 per share of common stock. The closing price on March 20, 2020, the last trading day before the closing of the exchange agreements which took place on a Saturday, was $0.034 per share of common stock. The Company recorded a loss on the extinguishment of the exchanged Original Convertible Note of $104,975.

The remaining outstanding Original Convertible Notes (including those for which default notices have been received) consist of the following at March 31, 2020 and December 31, 2019:

	March 31, 2020	December 31, 2019
Principal amount of notes payable	$ 75,000	$ 125,000
Accrued interest payable	54,286	82,060
	$ 129,286	$ 207,060

As of March 31, 2020, principal and accrued interest on the Original Convertible Note that is subject to a default notice accrues annual interest at 12% instead of 10%, totaled $44,948, of which $19,948 was accrued interest. As of December 31, 2019, principal and accrued interest on Original Convertible Notes subject to default notices totaled $43,666 of which $18,666 was accrued interest.

As of March 31, 2020 all of the outstanding Original Convertible Notes, inclusive of accrued interest, were convertible into an aggregate of 11,366 shares of the Company's common stock. Such Original Convertible Notes will continue to accrue interest until exchanged, paid or otherwise discharged. There can be no assurance that any of the additional holders of the remaining Original Convertible Notes will exchange their Original Convertible Notes.

Note Payable to SY Corporation Co., Ltd.

On June 25, 2012, the Company borrowed 465,000,000 Won (the currency of South Korea, equivalent to approximately $400,000 United States Dollars as of that date) from and executed a secured note payable to SY Corporation Co., Ltd., formerly known as Samyang Optics Co. Ltd. ("SY Corporation"), an approximately 20% common stockholder of the Company at that time. SY Corporation was a significant stockholder and a related party at the time of the transaction but has not been a significant stockholder or related party of the Company subsequent to December 31, 2014. The note accrues simple interest at the rate of 12% per annum and had a maturity date of June 25, 2013. The Company has not made any payments on the promissory note. At June 30, 2013 and subsequently, the promissory note was outstanding and in default, although SY Corporation has not issued a notice of default or a demand for repayment. Management believes that SY Corporation is in default of its obligations under its January 2012 license agreement, as amended, with the Company, but the Company has not yet issued a notice of default. The Company has in the past made several efforts towards a comprehensive resolution of the aforementioned matters involving SY Corporation. During the three-months ended March 31, 2020, there were no further communications between the Company and SY Corporation.

The promissory note is secured by collateral that represents a lien on certain patents owned by the Company, including composition of matter patents for certain of the Company's high impact ampakine compounds and the low impact ampakine compounds CX2007 and CX2076, and other related compounds. The security interest does not extend to the Company's patents for its ampakine compounds CX1739 and CX1942, or to the patent for the use of ampakine compounds for the treatment of respiratory depression.

Note payable to SY Corporation consists of the following at March 31, 2020 and December 31, 2019:

	March 31, 2020	December 31, 2019
Principal amount of note payable	$ 399,774	$ 399,774
Accrued interest payable	375,241	363,280
Foreign currency transaction adjustment	(35,376)	3,182
	$ 739,639	$ 766,236

Interest expense with respect to this promissory note was $11,960 and $11,829 for the three-months ended March 31, 2020 and 2019, respectively.

Notes Payable to Officers and Former Officers

For the three-months ended March 31, 2020 and 2019, $2,816 and $2,533 was charged to interest expense with respect to Dr. Arnold S. Lippa's notes, respectively.

For the three-months ended March 31, 2020 and 2019, $4,212 and $3,801 was charged to interest expense with respect to Dr. James S. Manuso's notes, respectively.

As of September 30, 2018, Dr. James S. Manuso resigned as executive officer in all capacities and as a member of the board of directors of RespireRx (the "Board of Directors"). All of the $4,212 of interest expense noted above for the three-months ended March 31, 2019, was incurred while Dr. Manuso was no longer an officer.

Other Short-Term Notes Payable

Other short-term notes payable at March 31, 2020 and December 31, 2019 consisted of premium financing agreements with respect to various insurance policies. At March 31, 2020, a premium financing agreement was payable in the initial amount of $70,762, with interest at11% per annum, in nine monthly installments of $8,256. In addition, there is $2,317 of short term financing of office and clinical trials insurance premiums. At March 31, 2020 and December 31, 2019, the aggregate amount of the short-term notes payable was $73,079 and $4,635 respectively.

5. Settlement and Payment Agreements

On December 16, 2019, RespireRx and Salamandra, LLC ("Salamandra") entered into an amendment (the "Amendment") to the settlement agreement and release, executed August 21, 2019 (the "Original Settlement Agreement" and as amended, the "Amended Settlement Agreement") regarding $202,395 owed by the Company to Salamandra (as reduced by any further payments by the Company to Salamandra, the "Full Amount") in connection with an arbitration award previously granted in favor of Salamandra in the Superior Court of New Jersey. Under the terms of the Original Settlement Agreement, the Company was to pay Salamandra $125,000 on or before November 30, 2019 in full satisfaction of the Full Amount owed, subject to conditions regarding the Company's ability to raise certain dollar amounts of working capital. Under the Amended Settlement Agreement, (i) the Company was to pay and the Company paid to Salamandra $25,000 on or before December 21, 2019, (ii) upon such payment, Salamandra ceased all collection efforts against the Company until March 31, 2020 (the "Threshold Date"), and (iii) the Company was to pay to Salamandra $100,000 on or before the Threshold Date if the Company had at that time raised $600,000 in working capital. Such payments by the Company would have constituted satisfaction of the Full Amount owed and would have served as consideration for the dismissal of the action underlying the arbitration award and the mutual releases set forth in the Amended Settlement Agreement. If the Company had raised less than $600,000 in working capital before the Threshold Date, the Company was to pay to Salamandra an amount equal to 21% of the working capital amount raised, in which case such payment would have reduced the Full Amount owed on a dollar-for-dollar basis, and Salamandra would then have been able to seek collection on the remainder of the debt. The Company made the initial payment of $25,000 in December 2019, but did not make the subsequent required payment on March 31, 2020 and has initiated further discussions with the intent of reaching a revised settlement agreement which cannot be assured.

In February 2020, the Company and a vendor agreed to discuss amendments to an agreement in principal reached on September 23, 2019 regarding the payment schedule of undisputed amounts owed by the Company to the vendor. The current discussions include, among other things, an extension of time to raise the amounts owed. Neither the original agreement in principal nor the discussion of amendments has resulted in a formal agreement. The original agreement in principal called for a payment of a minimum of $100,000 on or before November 30, 2019 assuming the Company has raised at least $600,000 by that date and thereafter called for a payment of $50,000 per month until paid in full.

The due date of the $100,000 annual amount payable to the University of Illinois that was originally due on December 31, 2019 pursuant to the 2014 License Agreement, was extended to June 30, 2020.

6. Stockholders' Deficiency

Preferred Stock

RespireRx has authorized a total of 5,000,000 shares of preferred stock, par value $0.001 per share. As of March 31, 2020 and December 31, 2019, 1,250,000 shares were designated as 9% Cumulative Convertible Preferred Stock (non-voting, "9% Preferred Stock"); 37,500 shares were designated as Series B Convertible Preferred Stock (non-voting, "Series B Preferred Stock"); 205,000 shares were designated as Series A Junior Participating Preferred Stock (non-voting, "Series A Junior Participating Preferred Stock"); and 1,700 shares were designated as Series G 1.5% Convertible Preferred Stock. Accordingly, as of March 31, 2020 and December 31, 2019, 3,505,800 shares of preferred stock were undesignated and may be issued with such rights and powers as the Board of Directors may designate.

Series B Preferred Stock outstanding as of March 31, 2020 and 2019 consisted of 37,500 shares issued in a May 1991 private placement. Each share of Series B Preferred Stock is convertible into approximately 0.00030 shares of common stock at an effective conversion price of $2,208.375 per share of common stock, which is subject to adjustment under certain circumstances. As of March 31, 2020 and December 31, 2019, the shares of Series B Preferred Stock outstanding are convertible into 11 shares of common stock. RespireRx may redeem the Series B Preferred Stock for $25,001, equivalent to $0.6667 per share, an amount equal to its liquidation preference, at any time upon 30 days prior notice.

Common Stock

There were 33,693,853 shares of RespireRx's Common Stock outstanding as of March 31, 2020. As of March 31, 2020, RespireRx did not have enough authorized shares to reserve for all conversions of convertible debt as well as common stock purchase options and warrants exercises. Assuming everything had been reserved, there would have been no shares of RespireRx's common stock available for future issuances. On March 21, 2020, the Board of Directors resolved to increase the authorized shares of common stock from 65,000,000 to 1,000,000,000 (1 billion) subject to approval by a majority of the stockholders of RespireRx, which approval was obtained on March 22, 2020 pursuant to a written consent of holders of a majority of the voting stock of the corporation (RespireRx) taken without a meeting, and appropriate notification of all shareholders and subject to the authorized officers making the appropriate filings with the Secretary of State of the State of Delaware. The increased authorized number of shares of common stock became effective on April 30, 2020 when RespireRx filed the Fourth Certificate of Amendment of Second Restated Certificate of Incorporation of RespireRx Pharmaceuticals Inc. with the Secretary of State of the State of Delaware increasing the authorized number of shares of RespireRx's common stock that may be issued to 1,000,000,000 (1 billion) shares. The amounts in the table below would have been reserved as of March 31, 2020 had there been adequate authorized but unissued shares of common stock. Since the increase in authorized shares of common stock, an appropriate number of shares of common stock have been reserved for each of the items specified in the table below.

Reserved for the conversion, exercise or issuance of:	Number of shares to have been reserved as of March 31, 2020
Series B Preferred	11
Conversion of convertible notes	80,144,609
Exercise of warrants	2,191,043
Exercise of options	4,286,071
Issuances of shares or option pursuant to the 2014 Plan	63,236
Issuances of shares or option pursuant to the 2015 Plan	4,427,342
Pier contingent shares	6,497
Total	91,118,809

Common Stock Warrants

Information with respect to the issuance and exercise of common stock purchase warrants in connection with the Convertible Note Payable and Warrant Purchase Agreement, and Notes Payable to Officers, is provided at Note 4.

A summary of warrant activity for the three-months ended March 31, 2020 is presented below.

	Number of Shares	**Weighted Average Exercise Price**	**Weighted Average Remaining Contractual Life (in Years)**
Warrants outstanding at December 31, 2019	2,191,043	$ 1.87109	
Issued	-	-	
Expired	-	-	
Warrants outstanding at March 31, 2020	2,191,043	$ 1,87109	2.40
Warrants exercisable at March 31, 2020	2,191,043	$ 1,87109	2.40

The exercise prices of common stock warrants outstanding and exercisable are as follows at March 31, 2020:

Exercise Price	Warrants Outstanding (Shares)	Warrants Exercisable (Shares)	Expiration Date
$ 0.5000	175,000	175,000	October 22, 2024
$ 0.5000	150,000	150,000	August 19, 2024
$ 1.0000	916,217	916,217	September 20, 2022
$ 1.1800	42,372	42,372	May 17, 2022
$ 1.5000	190,000	190,000	December 30, 2023
$ 1.5620	130,284	130,284	December 31, 2021
$ 1.5750	238,814	238,814	April 30, 2023
$ 2.7500	8,000	8000	September 20, 2022
$ 4.8750	108,594	108,594	September 30, 2020
$ 6.8348	145,758	145,758	September 30, 2020
$ 7.9300	86,004	86,004	February 28, 2021
	2,191,043	2,191,043	

Based on a value of $0.0115 per share on March 31, 2020, there were no exercisable in-the-money common stock warrants as of March 31, 2020.

A summary of warrant activity for the three-months ended March 31, 2019 is presented below.

	Number of Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life (in Years)
Warrants outstanding at December 31, 2018	1,783,229	$ 2.20393	
Issued	110,000	1.50000	
Expired	(18,401)	5.71706	
Warrants outstanding at March 31, 2019	1,874,828	$ 2.12815	2.96
Warrants exercisable at March 31, 2019	1,874,828	$ 2.12815	2.96

The exercise prices of common stock warrants outstanding and exercisable are as follows at March 31, 2019:

Exercise Price	Warrants Outstanding (Shares)	Warrants Exercisable (Shares)	Expiration Date
$ 1.0000	916,217	916,217	September 20, 2022
$ 1.2870	41,002	41,002	April 17, 2019
$ 1.5000	190,000	190,000	December 30, 2023
$ 1.5620	130,284	130,284	December 31, 2021
$ 1.5750	238,814	238,814	April 30, 2023
$ 2.7500	8,000	8000	September 20, 2022
$ 4.8500	5,155	5,155	September 23, 2019
$ 4.8750	108,594	108,594	September 30, 2020
$ 5.0000	5,000	5,000	September 22, 2019
$ 6.8348	145,758	145,758	September 30, 2020
$ 7.9300	86,004	86,004	February 28, 2021
	1,874, 828	1,874,828	

Based on a value of $0.85000 per share on March 31, 2019, there was no intrinsic value of exercisable in-the-money common stock warrants as of March 31, 2019.

Stock Options

On March 18, 2014, the stockholders of RespireRx holding a majority of the votes to be cast on the issue approved the adoption of RespireRx's 2014 Equity, Equity-Linked and Equity Derivative Incentive Plan (the "2014 Plan"), which had been previously adopted by the Board of Directors, subject to stockholder approval. The Plan permits the grant of options and restricted stock with respect to up to 325,025 shares of common stock, in addition to stock appreciation rights and phantom stock, to directors, officers, employees, consultants and other service providers of the Company.

On June 30, 2015, the Board of Directors adopted the 2015 Stock and Stock Option Plan (as amended, the "2015 Plan"). The 2015 Plan initially provided for, among other things, the issuance of either or any combination of restricted shares of common stock and non-qualified stock options to purchase up to 461,538 shares of the Company's common stock for periods up to ten years to management, members of the Board of Directors, consultants and advisors. On August 18, 2015, March 31, 2016, January 17, 2017, December 9, 2017 the Board increased the number of shares that may be issued under the 2015 Plan, and on December 28, 2018, the Board of Directors further increased the number of shares that may be issued under the 2015 Plan to 8,985,260 shares of the Company's common stock. As of March 31, 2020, there were 8,985,260 shares that may be issued under the 2015 Plan. On May 5, 2020 the Board of Directors increased the number of shares that may be issued under the 2015 Plan to 58,985,260. The Company has not and does not intend to present the 2015 Plan to stockholders for approval.

Other than the change in the number of shares available under the 2015 Plan, no other changes were made to the 2015 Plan by these amendments noted above.

Information with respect to the Black-Scholes variables used in connection with the evaluation of the fair value of stock-based compensation costs and fees is provided at Note 3.

A summary of stock option activity for the three-months ended March 31, 2020 is presented below.

	Number of Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life (in Years)
Options outstanding at December 31, 2019	4,287,609	$ 3.3798	4.98
Expired	(1,538)	16.6400	-
Options outstanding at March 31, 2020	4,286,071	$ 3.3750	4.73
Options exercisable at December 31, 2019	4,287,609	$ 3.3789	4.98
Options exercisable at March 31, 2020	4,286,071	$ 3.3750	4.73

The exercise prices of common stock options outstanding and exercisable were as follows at December 31, 2019:

Exercise Price	Options Outstanding (Shares)	Options Exercisable (Shares)	Expiration Date
$ 0.7000	21,677	21,677	November 21, 2023
$ 1.1200	310,388	310,388	April 5, 2023
$ 1.2500	16,762	16,762	December 7, 2022
$ 1.3500	34,000	34,000	July 28, 2022
$ 1.4500	1,849,418	1,849,418	December 9, 2027
$ 1.4500	100,000	100,000	December 9, 2027
$ 2.0000	285,000	285,000	June 30, 2022
$ 2.0000	25,000	25,000	July 26, 2022
$ 3.9000	395,000	395,000	January 17, 2022
$ 4.5000	7,222	7,222	September 2, 2021
$ 5.6875	89,686	89,686	June 30, 2020
$ 5.7500	2,608	2,608	September 12, 2021
$ 6.4025	27,692	27,692	August 18, 2020
$ 6.4025	129,231	129,231	August 18, 2022
$ 6.4025	261,789	261,789	August 18, 2025
$ 6.8250	8,791	8,791	December 11, 2020
$ 7.3775	523,077	523,077	March 31, 2021
$ 8.1250	169,231	169,231	June 30, 2022
$ 13.9750	3,385	3,385	March 14, 2024
$ 15.4700	7,755	7,755	April 8, 2020
$ 15.9250	2,462	2,462	February 28, 2024
$ 19.5000	9,487	9,487	July 17, 2022
$ 19.5000	6,410	6,410	August 10, 2022
	4,286,071	4,286,071	

There was no deferred compensation expense for the outstanding and unvested stock options at March 31, 2020.

Based on a fair value of $0.0115 per share on March 31, 2020, there were no exercisable in-the-money common stock options as of March 31, 2020.

Reserved and Unreserved Shares of Common Stock

On January 17, 2017, the Board of Directors of the Company approved the adoption of an amendment of the Amended and Restated RespireRx Pharmaceuticals, Inc. 2015 Stock and Stock Option Plan (as amended, the "2015 Plan"). That amendment increases the shares issuable under the plan by 1,500,000, from 1,538,461 to 3,038,461. On December 9, 2017, the Board of Directors further amended the 2015 Plan to increase the number of shares that may be issued under the 2015 Plan to 6,985,260 shares of the Company's common stock. On December 28, 2018, the Board of Directors further amended the 2015 Plan to increase the number of shares that may be issued under the 2015 Plan to 8,985,260 shares of the Company's common stock. On May 5, 2020 the Board of Directors increased the number of shares that may be issued under the 2015 Plan to 58,985,260.

Other than the change in the number of shares available under the 2015 Plan, no other changes were made to the 2015 Plan by these amendments noted above.

At March 31, 2020, RespireRx had 65,000,000 shares of common stock authorized and 33,693,853 shares of common stock issued and outstanding. See Note 6. Stockholders' Deficiency – Common Stock, above for a more detailed description of reserved and unreserved shares of common stock.

7. Related Party Transactions

Dr. Arnold S. Lippa and Jeff E. Margolis, officers and directors of RespireRx since March 22, 2013, have indirect ownership and managing membership interests in Aurora Capital LLC ("Aurora") through interests held in its members, and Jeff. E. Margolis is also an officer of Aurora. Aurora is a boutique investment banking firm specializing in the life sciences sector that is also a full-service brokerage firm.

A description of advances and notes payable to officers is provided at Note 4.

8. Commitments and Contingencies

Pending or Threatened Legal Action and Claims

On March 10, 2020, Sharp Clinical Services, Inc. a vendor of RespireRx served a complaint and summons on the Company dated February 21, 2020 related to a December 16, 2019 demand for payment of past due invoices inclusive of late fees totaling $103,890 of which $3,631 relates to late fees seeking $100,259 plus 1.5% interest per month on outstanding unpaid invoices. Amid settlement discussions, the vendor stated on March 13, 2020 its intent to proceed to a default judgment against the Company, and the Company stated on March 14, 2020 its intent to continue settlement discussions. As of March 31, 2020, the Company had recorded accounts payable of $99,959 to such vendor, an amount considered by the Company to be reasonable given the ongoing settlement discussions.

On December 16, 2019, RespireRx and Salamandra, LLC ("Salamandra") entered into an amendment (the "Amendment") to the settlement agreement and release, executed August 21, 2019 (the "Original Settlement Agreement" and as amended, the "Amended Settlement Agreement") regarding $202,395 owed by the Company to Salamandra (as reduced by any further payments by the Company to Salamandra, the "Full Amount") in connection with an arbitration award previously granted in favor of Salamandra in the Superior Court of New Jersey. Under the terms of the Original Settlement Agreement, the Company was to pay Salamandra $125,000 on or before November 30, 2019 in full satisfaction of the Full Amount owed, subject to conditions regarding the Company's ability to raise certain dollar amounts of working capital. Under the Amended Settlement Agreement, (i) the Company was to pay and the Company paid to Salamandra $25,000 on or before December 21, 2019, (ii) upon such payment, Salamandra ceased all collection efforts against the Company until March 31, 2020 (the "Threshold Date"), and (iii) the Company was to pay to Salamandra $100,000 on or before the Threshold Date if the Company had at that time raised $600,000 in working capital. Such payments by the Company would have constituted satisfaction of the Full Amount owed and would have served as consideration for the dismissal of the action underlying the arbitration award and the mutual releases set forth in the Amended Settlement Agreement. If the Company had raised less than $600,000 in working capital before the Threshold Date, the Company was to pay to Salamandra an amount equal to 21% of the working capital amount raised, in which case such payment will reduce the Full Amount owed on a dollar-for-dollar basis, and Salamandra may then seek collection on the remainder of the debt. The Company did not make the requirement payment on March 31, 2020 and has initiated further discussions with the intent of reaching a revised settlement agreement which cannot be assured.

Related to the above matter, and preceding the settlement discussions, by letter dated February 5, 2016, the Company received a demand from a law firm representing Salamandra alleging an amount due and owing for unpaid services rendered. On January 18, 2017, following an arbitration proceeding, an arbitrator awarded the vendor the full amount sought in arbitration of $146,082. Additionally, the arbitrator granted the vendor attorneys' fees and costs of $47,937. All such amounts have been accrued at March 31, 2020 and December 31, 2019, including accrued interest at 4.5% annually from February 26, 2018, the date of the judgment, through March 31, 2020, totaling $11,059.

By letter dated May 18, 2018, the Company received notice from counsel claiming to represent TEC Edmonton and The Governors of the University of Alberta, which purported to terminate, effective December 12, 2017, the license agreement dated May 9, 2007 between the Company and The Governors of the University of Alberta. The Company, through its counsel, disputed any grounds for termination and notified the representative that it invoked Section 13 of that license agreement, which mandates a meeting to be attended by individuals with decision-making authority to attempt in good faith to negotiate a resolution to the dispute. In February 2019, the Company and TEC Edmonton tentatively agreed to terms acceptable to all parties to establish a new license agreement and the form of a new license agreement. However, the Company has re-evaluated that portion of its ampakine program and has decided not to enter into a new agreement at this time. The lack of entry into a new agreement at this time does not affect the Company's other ampakine programs and permits the Company to reallocate resources to those programs, including, but not limited to ADHD, SCI, FXS and others.

By email dated July 21, 2016, the Company received a demand from an investment banking consulting firm that represented the Company in 2012 in conjunction with the Pier transaction alleging that $225,000 is due and payable for investment banking services rendered. Such amount has been included in accrued expenses at March 31, 2020 and December 31, 2019.

The Company is periodically the subject of various pending and threatened legal actions and claims. In the opinion of management of the Company, adequate provision has been made in the Company's consolidated financial statements as of March 31, 2020 and December 31, 2019 with respect to such matters, including, specifically, the matters noted above. The Company intends to vigorously defend itself if any of the matters described above results in the filing of a lawsuit or formal claim. See Note 5. Settlement and Payment Agreements for additional items and details.

Significant Agreements and Contracts

Consulting Agreement

Richard Purcell, the Company's Senior Vice President of Research and Development since October 15, 2014, provides his services to the Company on a month-to-month basis through his consulting firm, DNA Healthlink, Inc., through which the Company has contracted for his services, for a monthly cash fee of $12,500. Additional information with respect to shares of common stock that have been issued to Mr. Purcell is provided at Note 6. Cash compensation expense pursuant to this agreement totaled $37,500 for the three-months ended March 31, 2020 and 2019, which is included in research and development expenses in the Company's consolidated statements of operations for such periods.

Employment Agreements

On October 12, 2018, after the resignation of Dr. James Manuso effective September 30, 2018, Dr. Lippa was named Interim President and Interim Chief Executive Officer (see Note 9 to the Company's consolidated financial statements for the fiscal years ended December 31, 2019 and 2018). Effective May 6, 2020, with the appointment of Timothy Jones as RespireRx's President and Chief Executive Officer, Dr. Lippa resigned the interim officer positions. Dr. Lippa has continued to serve as RespireRx's Executive Chairman and as a member of the Board of Directors. On August 18, 2015, Dr. Lippa was named Chief Scientific Officer of RespireRx, and RespireRx entered into an employment agreement with Dr. Lippa in that capacity. Pursuant to the agreement, which was for an initial term through September 30, 2018 (and which automatically extended on September 30, 2018 and 2019 and will automatically extend annually, upon the same terms and conditions, for successive periods of one year, unless either party provides written notice of its intention not to extend the term of the agreement at least 90 days prior to the applicable renewal date), Dr. Lippa earned an annual base salary of $300,000. Dr. Lippa is also eligible to earn a performance-based annual bonus award of up to 50% of his base salary, based upon the achievement of annual performance goals established by the Board of Directors in consultation with the executive prior to the start of such fiscal year, or any amount at the discretion of the Board of Directors. Additionally, Dr. Lippa has been granted stock options on several occasions and is eligible to receive additional awards under RespireRx's 2014 Plan and 2015 Plan at the discretion of the Board of Directors. Dr. Lippa did not receive any option to purchase shares of common stock during three-month period ending March 31, 2020. Additional information with respect to the stock options granted to Dr. Lippa is provided at Note 6. Dr. Lippa is also entitled to receive, until such time as RespireRx establishes a group health plan for its employees, $1,200 per month, on a tax-equalized basis, as additional compensation to cover the cost of health coverage and up to $1,000 per month, on a tax-equalized basis, as reimbursement for a term life insurance policy and disability insurance policy. Dr. Lippa is also entitled to be reimbursed for business expenses. Cash compensation inclusive of employee benefits accrued pursuant to this agreement totaled $84,900 for each of the three-months ended March 31, 2020 and 2019, respectively, which amounts are included in accrued compensation and related expenses in the Company's consolidated balance sheet at March 31, 2020 and December 31, 2019, and in research and development expenses in the Company's condensed consolidated statement of operations for the three-months ended March 31, 2020 and 2019. Dr. Lippa does not receive any additional compensation for serving as Executive Chairman and on the Board of Directors.

On August 18, 2015, the Company also entered into an employment agreement with Jeff E. Margolis, in his role at that time as Vice President, Secretary and Treasurer. Pursuant to the agreement, which was for an initial term through September 30, 2016 and later amended (and which automatically extended on September 30, 2016, 2017, 2018 and 2019 and will automatically extend annually, upon the same terms and conditions for successive periods of one year, unless either party provides written notice of its intention not to extend the term of the agreement at least 90 days prior to the applicable renewal date), Mr. Margolis currently receives an annual base salary of $300,000, and is eligible to receive performance-based annual bonus awards based upon the achievement of annual performance goals established by the Board of Directors in consultation with the executive prior to the start of such fiscal year. Additionally, Mr. Margolis has been granted stock options on several occasions and is eligible to receive additional awards under the Company's Plans at the discretion of the Board of Directors. Mr. Margolis is also entitled to receive, until such time as the Company establishes a group health plan for its employees, $1,200 per month, on a tax-equalized basis, as additional compensation to cover the cost of health coverage and up to $1,000 per month, on a tax-equalized basis, as reimbursement for a term life insurance policy and disability insurance policy. Mr. Margolis is also entitled to be reimbursed for business expenses. Additional information with respect to the stock options granted to Mr. Margolis is provided at Note 6. Recurring cash compensation accrued pursuant to this amended agreement totaled $80,400 for the three-months ended March 31, 2020 and 2019 which amounts are included in accrued compensation and related expenses in the Company's condensed consolidated balance sheet as of March 31, 2020 and 2019, and in general and administrative expenses in the Company's condensed consolidated statement of operations. Mr. Margolis does not receive any additional compensation for serving on the Company's Board of Directors.

The employment agreements between the Company and each of Dr. Lippa and Mr. Margolis (prior to the 2017 amendment), respectively, provided that the payment obligations associated with the first year base salary were to accrue, but no payments were to be made, until at least $2,000,000 of net proceeds from any offering or financing of debt or equity, or a combination thereof, was received by the Company, at which time scheduled payments were to commence. Dr. Lippa and Mr. Margolis (who are each also directors of the Company), have each agreed, effective as of August 11, 2016, to continue to defer the payment of such amounts indefinitely, until such time as the Board of Directors of the Company determines that sufficient capital has been raised by the Company or is otherwise available to fund the Company's operations on an ongoing basis.

University of Illinois 2014 Exclusive License Agreement

On June 27, 2014, the Company entered into an Exclusive License Agreement (the "2014 License Agreement") with the University of Illinois, the material terms of which were similar to a License Agreement between the parties that had been previously terminated on March 21, 2013. The 2014 License Agreement became effective on September 18, 2014, upon the completion of certain conditions set forth in the 2014 License Agreement, including: (i) the payment by the Company of a $25,000 licensing fee, (ii) the payment by the Company of outstanding patent costs aggregating $15,840, and (iii) the assignment to the University of Illinois of rights the Company held in certain patent applications, all of which conditions were fulfilled.

The 2014 License Agreement granted the Company (i) exclusive rights to several issued and pending patents in numerous jurisdictions and (ii) the non-exclusive right to certain technical information that is generated by the University of Illinois in connection with certain clinical trials as specified in the 2014 License Agreement, all of which relate to the use of cannabinoids for the treatment of sleep related breathing disorders. The Company is developing dronabinol (Δ9-tetrahydrocannabinol), a cannabinoid, for the treatment of OSA, the most common form of sleep apnea.

The 2014 License Agreement provides for various commercialization and reporting requirements commencing on June 30, 2015. In addition, the 2014 License Agreement provides for various royalty payments, including a royalty on net sales of 4%, payment on sub-licensee revenues of 12.5%, and a minimum annual royalty beginning in 2015 of $100,000, which is due and payable on December 31 of each year beginning on December 31, 2015. The minimum annual royalty obligation of $100,000 due on December 31, 2019, was extended to June 30, 2020. One-time milestone payments may become due based upon the achievement of certain development milestones. $350,000 will be due within five days after the dosing of the first patient is a Phase III human clinical trial anywhere in the world. $500,000 will be due within five days after the first NDA filing with FDA or a foreign equivalent. $1,000,000 will be due within twelve months of the first commercial sale. One-time royalty payments may also become due and payable. Annual royalty payments may also become due. In the year after the first application for market approval is submitted to the FDA or a foreign equivalent and until approval is obtained, the minimum annual royalty will increase to $150,000. In the year after the first market approval is obtained from the FDA or a foreign equivalent and until the first sale of a product, the minimum annual royalty will increase to $200,000. In the year after the first commercial sale of a product, the minimum annual royalty will increase to $250,000.

During each of the three-months ended March 31, 2020 and 2019, the Company recorded charges to operations of $25,000, respectively, with respect to its 2019 and 2018 minimum annual royalty obligation, which is included in research and development expenses in the Company's condensed consolidated statement of operations for the three-months ended March 31, 2020 and 2019, respectively. The Company did not pay the amount due on December 31, 2019 for which the Company was granted an extension until June 30, 2020.

UWM Research Foundation Option Agreement

On March 2, 2020, RespireRx and UWM Research Foundation, an affiliate of the University of Wisconsin-Milwaukee, entered into an option agreement ("UWMRF Option Agreement") pursuant to which RespireRx has a six-month option to license the identified intellectual property pursuant to license terms substantially in the Form of a Patent License Agreement ("UWMRF License Agreement") that is attached to the UWMRF Option Agreement as Appendix I. The UWMRF License Agreement, if it becomes effective, will expand the Company's neuromodulator platform which has historically included the Company's ampakine program to include a GABA-A program as well. That platform, as expanded, is now called Project Endeavor.

Noramco Inc./Purisys, LLC - Dronabinol Development and Supply Agreement

On September 4, 2018, RespireRx entered into a dronabinol Development and Supply Agreement with Noramco Inc., one of the world's major dronabinol manufacturers. Noramco subsequently assigned this agreement (as assigned, the "Purisys Agreement") to its subsidiary, Purisys, LLC ("Purisys"). Under the terms of the Purisys Agreement, Purisys agreed to (i) provide all of the active pharmaceutical ingredient ("API") estimated to be needed for the clinical development process for both the first- and second-generation products (each a "Product" and collectively, the "Products"), three validation batches for New Drug Application ("NDA") filing(s) and adequate supply for the initial inventory stocking for the wholesale and retail channels, subject to certain limitations, (ii) maintain or file valid drug master files ("DMFs") with the FDA or any other regulatory authority and provide the Company with access or a right of reference letter entitling the Company to make continuing reference to the DMFs during the term of the agreement in connection with any regulatory filings made with the FDA by the Company, (iii) participate on a development committee, and (iv) make available its regulatory consultants, collaborate with any regulatory consulting firms engaged by the Company and participate in all FDA or Drug Enforcement Agency ("DEA") meetings as appropriate and as related to the API.

In consideration for these supplies and services, the Company has agreed to purchase exclusively from Purisys during the commercialization phase all API for its Products as defined in the Development and Supply Agreement at a pre-determined price subject to certain producer price adjustments and agreed to Purisys's participation in the economic success of the commercialized Product or Products up to the earlier of the achievement of a maximum dollar amount or the expiration of a period of time.

Transactions with Bausch Health Companies Inc.

Beginning in March 2010, the Company entered into a series of asset purchase and license agreements with Biovail Laboratories International SRL, which after its merger with Valeant Pharmaceuticals International, Inc. was later renamed Bausch Health Companies Inc. ("Bausch").

In March 2011, the Company entered into a new agreement with Bausch to reacquire the ampakine compounds, patents and rights that Bausch had acquired from the Company in March 2010. The new agreement provided for potential future payments of up to $15,150,000 by the Company based upon the achievement of certain developments, including new drug application submissions and approval milestones pertaining to an intravenous dosage form of the ampakine compounds for respiratory depression, a therapeutic area not currently pursued by the Company. Bausch is also eligible to receive additional payments of up to $15,000,000 from the Company based upon the Company's net sales of an intravenous dosage form of the compounds for respiratory depression.

Summary of Principal Cash Obligations and Commitments

The following table sets forth the Company's principal cash obligations and commitments for the next five fiscal years as of March 31, 2020, aggregating $805,600. License agreement amounts included in the 2020 column represents amounts contractually due from April 1, 2020 through December 31, 2020 (nine months) and in each of the subsequent years, represents the full year. Employment agreement amounts included in the 2020 column represent amounts contractually due at from April 1, 2020 through September 30, 2020 (six months) when such contracts expire unless extended pursuant to the terms of the contracts.

		Payments Due By Year				
	Total	2020	2021	2022	2023	2024
License agreements	$475,000	$ 75,000	$100,000	$100,000	$100,000	$100,000
Employment agreements (1)	330,600	330,600	-	-	-	-
Total	$805,600	$405,600	$100,000	$100,000	$100,000	$100,000

(1) The payment of such amounts has been deferred indefinitely, as described above at "Employment Agreements." The 2020 amounts include six-months of employment agreement obligations for Dr. Lippa and Mr. Margolis as their employment contracts renewed on September 30, 2019 and the 2020 obligations include the six months of obligations through September 30, 2020.

9. Subsequent Events

Appointment of Timothy Jones as New CEO and President and Resignation of Arnold S. Lippa as Interim CEO and Interim President, but remaining as Executive Chairman and Chief Scientific Officer

On May 6, 2020, RespireRx entered into an employment contract (the "Jones Contract") with Timothy Jones to serve as Chief Executive Officer ("CEO") and President of RespireRx. The Jones Contract provides for a provisional term through July 31, 2020, during which Mr. Jones will be employed "at will" and after which additional terms and conditions of the Jones Contract will become effective, as set forth in the Jones Contract. If not earlier terminated during the provisional term, or thereafter pursuant to the terms of the Jones Contract, the Jones Contract will be effective through September 30, 2023, and will renew annually thereafter unless either party terminates in writing at least 90 days before the next renewal date. Dr. Arnold Lippa, who has been serving as RespireRx's Interim CEO and Interim President, resigned from those positions concurrently with the effectiveness of the Jones Contract, but will continue to serve as RespireRx's Executive Chairman and Chief Scientific Officer. Mr. Jones joined the Company's Board of Directors on January 28, 2020.

In light of Mr. Jones appointment, he has ceased to receive compensation for his service on the Board of Directors as a non-employee member of the Board of Directors, and instead, going forward, Mr. Jones will be compensated as provided the Jones Contract.

Conversions of Certain Convertible Notes

The table below summarizes the conversions of several convertible notes after March 31, 2020

	Date 2020	Principal converted	Interest converted	Costs	Total converted	No. Shares issued
Convertible note issued in May 2019						
	April 16	$ 5,138	-	$ 750	$ 5,888	1,600,000
	April 27	$ 5,298	-	$ 750	$ 6,048	1,680,000
	May 7	$ 2,190	-	$ 750	$ 2,940	1,680,000
	May 18	$ 2,610	-	$ 750	$ 3,360	2,100,000
Convertible note issued in August 2019						
	April 17	$ 7,800	-	$ 1,200	$ 9,000	1,500,000
	April 21	$ 7,150	-	$ 500	$ 7,650	1,500,000
	April 28	$ 8,500	-	$ 500	$ 9,000	1,500,000
	May 1	$ 7,186	-	$ 500	$ 7,686	2,000,000
	May 5	$ 6,575	-	$ 500	$ 7,075	2,000,000
	May 7	$ 5,112	-	$ 500	$ 5,612	2,000,000
	May 11	3,892	-	$ 500	$ 4,392	2,000,000
Convertible note issued in October 2019						
	April 28	$ 2,420	-	$ 1,000	$ 3,420	1,000,000
	May 4	$ 4,742	-	$ 1,000	$ 5,742	2,200,000
	May 6	$ 4,265	-	$ 1,000	$ 5,265	2,500,000
	May 11	$ 3,293	-	$ 1,000	$ 4,293	2,650,000
Convertible note issued in November 2019						
	May 4	$ 7,900	$ 394	-	$ 8,294	2,194,159
	May 7	$ 6,900	$ 350	-	$ 7,250	2,626,714
	May 12	$ 6,100	$ 318	-	$ 6,418	2,971,079
Total		$ 97,071	$ 1,062	$ 11,200	$ 109,333	35,701,952

On May 17, 2020, the holder of the 2019 Note that was issued on May 17, 2019 agreed to extend the maturity date of such 2019 Note until November 17, 2020. The Company executed Amendment Number 1 to the related note agreement effective May 17, 2020.

On May 18, 2020, the holder of the 2019 Note that was issued on August 19, 2020, informed the Company that such holder considered that 2019 Note and accrued interest to have been paid in full with the final conversion on May 14, 2020.

Increase in Authorized Common Shares

The increase in the authorized number of shares of common stock described in Note 6. Stockholders' Deficiently – Common Stock took effect on April 30, 2020.

Increase in size of 2015 Stock Plan

On May 5, 2020, the Board of Directors resolved to increase the number of shares available for issuance pursuant to the 2015 Plan by 50,000,000 to 58,985,260 as describe in Note 6. Stockholders' Deficiency – Stock Options.

Convertible Note dated April 15, 2020

RespireRx and Power Up Lending Group Ltd. (the "Lender") entered into a Securities Purchase Agreement (the "Power Up Agreement"), dated as of April 15, 2020, by which the Lender loaned $53,000 to the Company in return for a convertible promissory note (the "April 2020 Note"), the Limited Guaranty (as defined below), and the delivery into escrow of a confession of judgment in favor of the Lender for the amount of the April 2020 Note plus fees and costs to be filed by the Lender upon the occurrence of an Event of Default (as defined in the April 2020 Note) and other transaction-related documents. The proceeds of the loan, which equal $50,000 after payment of $2,500 in legal fees and $500 in due diligence fees, are being used for general corporate purposes.

The April 2020 Note will be payable on April 15, 2021 (the "Maturity Date"), and bear interest at a rate equal to 12% per annum, with any amount of principal or interest which is not paid when due bearing interest at the rate of 22% per annum.

The Lender has the right, at any time during the period beginning on the date that is 180 days following the date of the April 2020 Note and ending on the later of (i) the Maturity Date and (ii) the date of payment of the Default Amount (as defined in the April 2020 Note), to convert any outstanding and unpaid amount of the April 2020 Note into shares of the Company's common stock or securities convertible into the Company's common stock ("April 2020 Conversion Shares"), provided that such conversion would not result in the Lender beneficially owning more than 4.99% of the Company's common stock. Subject to certain limitations and adjustments as described in the April 2020 Note, the Lender may convert at a per share conversion price equal to 61% of the lowest trading price of the common stock as reported by the exchange on which the Company's shares are traded, for the twenty trading days prior to, but excluding, the day upon which a notice of conversion is received by the Company. Upon the conversion of all amounts due under the April 2020 Note, the April 2020 Note would be deemed repaid and terminated.

The Company may prepay the outstanding principal amount under the April 2020 Note by paying a certain percentage of the sum of the outstanding principal, interest, default interest and other amounts owed. Such percentage varies from 120% to 145% depending on the period in which the prepayment occurs, as set forth in the April 2020 Note. During the period in which the April 2020 Note is outstanding, subject to certain limited exceptions, the Company must notify the Lender in advance of closing of any financing transactions with third party investors. At the Lender's discretion, the Company must amend and restate the April 2020 Note, including its conversion terms, and the April 2020 Conversion Shares to be identical to the instruments evidencing such financing transaction.

In consideration of and to induce the Lender to consummate the transaction referenced herein, the Chief Financial Officer of RespireRx (the "CFO"), on April 15, 2020 issued a limited guaranty in favor of the Lender (the "Limited Guaranty") whereby the CFO guaranteed to the Lender the prompt and full performance and observance by RespireRx of its obligation to promptly cooperate in processing all notices of conversions issued pursuant to the April 2020 Note.

The April 2020 Note and the shares of common stock issuable upon conversion thereof were offered and sold to the Lender in reliance upon specific exemptions from the registration requirements of United States federal and state securities laws, which include Section 4(a)(2) of the Securities Act of 1933, as amended (the "1933 Act"), and Rule 506 promulgated by the SEC under the 1933 Act. Pursuant to these exemptions, the Lender represented to the Company under the Power Up Agreement, among other representations, that it was an "accredited investor" as that term is defined in Rule 501(a) of Regulation D under the 1933 Act.

Reimbursement of Advances made by Officers to the Company

Advances to the Company, included in Notes payable to officers in the Company's condensed consolidated balance sheet as of March 31, 2020, made by Arnold S. Lippa, were repaid, in part, such repayment being $6,977.

Advances to the Company, included in Notes payable to officers in the Company's condensed consolidated balance sheet as of March 31, 2020 and other advances subsequent to March 31, 2020, made by Jeff Eliot Margolis, the Company's chief financial officer were repaid to Mr. Margolis, the total repayment being $10,775.

ITEM 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion and analysis should be read in conjunction with the condensed consolidated financial statements (unaudited) and notes related thereto appearing elsewhere in this document.

Overview

The mission of the Company is to develop innovative and revolutionary treatments to combat disorders caused by disruption of neuronal signaling. We are developing treatment options that address conditions that affect millions of people, but for which there are limited or poor treatment options, including obstructive sleep apnea ("OSA"), attention deficit hyperactivity disorder ("ADHD") and recovery from spinal cord injury ("SCI"), as well as certain neurological orphan diseases such as Fragile X Syndrome ("FXS"). RespireRx is developing a pipeline of new drug products based on our broad patent portfolios across two distinct drug platforms:

(i) cannabinoids, including dronabinol (a synthetic form of Δ9-tetrahydrocannabinol ("Δ9-THC")) that act upon the nervous system's endogenous cannabinoid receptors, and

(ii) neuromodulators, which under Project Endeavor, include (a) ampakines, proprietary compounds that positively modulate AMPA-type glutamate receptors to promote neuronal function and (b) positive allosteric modulators ("PAMs") of the gamma-amino-butyric acid type A ("GABA-A") receptors that are the subject of an option agreement dated March 2, 2020 between the Company and the UWM Research Foundation, Inc. ("UWMRF"), an affiliate of the University of Wisconsin-Milwaukee (the "UWMRF Option Agreement").

I. *Cannabinoids*

Background

Cannabinoids is a broad term to describe the pharmacologically active naturally occurring substances found within the cannabis (marijuana) plant. While the liberalization of state laws regulating the use and sales of marijuana has created a major industry based on the commercialization of marijuana for both medical and recreational use, the U.S. Food and Drug Administration ("FDA") has not recognized or approved the marijuana plant as medicine nor is it federally legal to sell products that contain cannabinoids as drugs, dietary supplements or foods (edibles) without its approval. From a scientific and pharmaceutical perspective, however, we do not think that pharmaceutical cannabinoids should suffer from the stigma that marijuana has, since it was declared a controlled substance in the 1930's. We believe that cannabinoids should be considered pharmaceuticals developed under FDA and comparable international regulatory bodies that happen to have been originally derived from plants much like aspirin, theophylline or tamoxifen.

In parallel with the widespread public attention given to the growth of the recreational, dietary supplement, health and wellness and medical cannabis industry, an alternate approach has focused on the development of cannabinoids as pharmaceutical products. We refer to the term “pharmaceutical cannabinoids” as cannabinoids developed according to FDA accepted regulatory pathways by which a company receives FDA approval to market and sell any new drug. Scientific study has focused on the two major cannabinoids, Δ9-THC and cannabidiol (“CBD”), although additional cannabinoids are gaining attention. RespireRx has been one of the pioneers in the field of pharmaceutical cannabinoids with its long-term commitment to developing Δ9-THC for the treatment of sleep-related breathing disorders.

To date, the FDA has approved three cannabinoids: (1) dronabinol (Marinol® and its generic equivalent and Syndros®), synthetically manufactured Δ9-THC, approved for the treatment of AIDS-related anorexia and chemotherapy induced nausea and vomiting, (2) Epidiolex®, an oral formulation of plant-derived, purified CBD, approved for seizures associated with Lennox-Gastaut syndrome or Dravet syndrome, and (3) nabilone (Cesamet®), a synthetic analogue of tetrahydrocannabinol, approved for chemotherapy induced nausea and vomiting. Sativex®, an oral solution containing a complex botanical mixture of tetrahydrocannabinol and CBD for the treatment of spasticity due to multiple sclerosis, is sold in Europe and over 23 other countries, but is not approved in the U.S. Management believes that the commercialization of these pharmaceutical cannabinoids has opened the door to a potentially large, expanding pharmaceutical cannabinoid market opportunity.

Dronabinol is a synthetically manufactured Δ9-THC, one of the pharmacologically active substances naturally occurring in the cannabis plant. Dronabinol, in its soft gel cap formulation, is a Schedule III, controlled drug that has been approved by the FDA for the treatment of AIDS-related anorexia and chemotherapy-induced nausea and vomiting. Dronabinol is available in the United States as the branded prescription drug product Marinol® capsules. Marinol®, together with numerous generic formulations, is available in 2.5, 5, and 10 mg capsules, with a maximum labelled dosage of 20 mg/day for the AIDS indication, or 15 mg/m2 per dose for chemotherapy-induced nausea and vomiting. Syndros® is a liquid formulation of dronabinol and is a Schedule II, controlled drug.

OSA and Existing Treatments

RespireRx has sought to develop dronabinol for the treatment of obstructive sleep apnea ("OSA"). OSA is a sleep-related breathing disorder that afflicts an estimated 29 million people in the United States according to the American Academy of Sleep Medicine ("AASM"), and an additional 26 million in Germany and 8 million in the United Kingdom, as presented at the European Respiratory Society's annual Congress in Paris, France in September 2018. OSA involves a decrease or complete halt in airflow despite an ongoing effort to breathe during sleep. When the muscles relax during sleep, soft tissue in the back of the throat collapses and obstructs the upper airway. OSA remains significantly under-recognized, as only 20% of cases in the United States according to the AASM and 20% of cases globally have been properly diagnosed. About 24 percent of adult men and 9 percent of adult women have the breathing symptoms of OSA with or without daytime sleepiness. OSA significantly impacts the lives of sufferers who do not get enough sleep; their quality of sleep is deteriorated such that daily function is compromised and limited. OSA is associated with decreased quality of life, significant functional impairment, and increased risk of road traffic accidents, especially in professions like transportation and shipping.

Research has established links between OSA and several important co-morbidities, including hypertension, type II diabetes, obesity, stroke, congestive heart failure, coronary artery disease, cardiac arrhythmias, and even early mortality. The consequences of undiagnosed and untreated OSA are medically serious and economically costly. According to the AASM, the estimated economic burden of OSA in the United States is approximately $162 billion annually. We believe that a new drug therapy that is effective in reducing the medical and economic burden of OSA would have significant advantages for optimal pricing in this costly disease indication.

Continuous Positive Airway Pressure ("CPAP") is the most common treatment for OSA. CPAP devices work by blowing pressurized air into the nose (or mouth and nose), which keeps the pharyngeal airway open. CPAP is not curative, and patients must use the mask whenever they sleep. Reduction of the apnea/hypopnea index ("AHI") is the standard objective measure of therapeutic response in OSA. Apnea is the cessation of breathing for 10 seconds or more and hyponea is a reduction in breathing. AHI is the sum of apnea and hypopnea events per hour. In the sleep laboratory, CPAP is highly effective at reducing AHI. However, the device is cumbersome and difficult for many patients to tolerate. Most studies describe that 25-50% of patients refuse to initiate or completely discontinue CPAP use within the first several months and that most patients who continue to use the device do so only intermittently.

Oral devices may be an option for patients who cannot tolerate CPAP. Several dental devices are available including the Mandibular Advancement Device ("MAD") and the Tongue Retaining Device ("TRD"). The MAD is the most widely used dental device for sleep apnea and is similar in appearance to a sports mouth guard. It forces the lower jaw forward and down slightly which keeps the airway more open. The TRD is a splint that holds the tongue in place to keep the airway as open as possible. Like CPAP, oral devices are not curative for patients with OSA. The cost of these devices tends to be high and side effects associated with them include nighttime pain, dry lips, tooth discomfort, and excessive salivation.

Patients with clinically significant OSA who cannot be treated adequately with CPAP or oral devices can elect to undergo surgery. The most common surgery is uvulopalatopharyngoplasty which involves the removal of excess tissue in the throat to make the airway wider. Other possible surgeries include tracheostomies, rebuilding of the lower jaw, and nose surgery. Patients who undergo surgery for the treatment of OSA risk complications, including infection, changes in voice frequency, and impaired sense of smell. Surgery is often unsuccessful and, at present, no method exists to reliably predict therapeutic outcome from these forms of OSA surgery.

Recently, another surgical option has become available based on upper airway stimulation. It is a combination of an implantable nerve stimulator and an external remote controlled by the patient. The hypoglossal nerve is a motor nerve that controls the tongue. The implanted device stimulates the nerve with every attempted breath, regardless of whether such stimulation is needed for that breath, to increase muscle tone to prevent the tongue and other soft tissues from collapsing. The surgically implanted device is turned on at night and off in the morning by the patient with the remote.

The Company's Cannabinoid Rights

In order to expand RespireRx's respiratory disorders program and develop cannabinoids for the treatment of OSA, RespireRx acquired 100% of the issued and outstanding equity securities of Pier Pharmaceuticals, Inc. ("Pier") effective August 10, 2012 pursuant to an Agreement and Plan of Merger. Pier was a clinical stage pharmaceutical company developing a pharmacologic treatment for OSA and had been engaged in research and clinical development activities.

Through the merger, RespireRx gained access to an Exclusive License Agreement (as amended, the "2007 License Agreement") that Pier had entered into with the University of Illinois Chicago ("UIC") on October 10, 2007. The 2007 License Agreement covered certain patents and patent applications in the United States and other countries claiming the use of certain compounds referred to as cannabinoids, of which dronabinol is a specific example, for the treatment of sleep-related breathing disorders, including sleep apnea.

The 2007 License Agreement was terminated effective March 21, 2013 and the Company entered into a new license agreement (the "2014 License Agreement") with UIC on June 27, 2014, the material terms of which were substantially similar to the 2007 License Agreement. The 2014 License Agreement grants the Company, among other provisions, exclusive rights: (i) to practice certain patents in the United States, Germany and the United Kingdom, as defined in the 2014 License Agreement, that are held by UIC; (ii) to identify, develop, make, have made, import, export, lease, sell, have sold or offer for sale any related licensed products; and (iii) to grant sub-licenses of the rights granted in the 2014 License Agreement, subject to the provisions of the 2014 License Agreement. The Company is required under the 2014 License Agreement, among other terms and conditions, to pay UIC a license fee, royalties, patent costs and certain milestone payments.

The 2014 License Agreement obligates the Company to comply with various commercialization and reporting requirements that commenced in 2015. In addition, the 2014 License Agreement provides for various royalty payments, including a royalty on net sales of 4%, payment on sub-licensee revenues of 12.5%, and a minimum annual royalty beginning in 2015 of $100,000, which is due and payable on December 31 of each year beginning on December 31, 2015. The minimum annual royalty obligation of $100,000 due on December 31, 2019, was extended to June 30, 2020. One-time milestone payments may become due based upon the achievement of certain development milestones. $350,000 will be due within five days after the dosing of the first patient is a Phase III human clinical trial anywhere in the world. $500,000 will be due within five days after the first NDA filing with the FDA or a foreign equivalent. $1,000,000 will be due within twelve months of the first commercial sale. One-time royalty payments may also become due and payable. Annual royalty payments may also become due. In the year after the first application for market approval is submitted to the FDA or a foreign equivalent and until approval is obtained, the minimum annual royalty will increase to $150,000. In the year after the first market approval is obtained from the FDA or a foreign equivalent and until the first sale of a product, the minimum annual royalty will increase to $200,000. In the year after the first commercial sale of a product, the minimum annual royalty will increase to $250,000. For each of the years ended December 31, 2019 and 2018, the Company recorded a charge to operations of $100,000 with respect to its minimum annual royalty obligation, which is included in research and development expenses in the Company's consolidated statements of operations for the years ended December 31, 2019 and 2018, respectively.

The due date of the $100,000 annual amount payable to the University of Illinois that was originally due on December 31, 2019 pursuant to the 2014 License Agreement, was extended to June 30, 2020.

The Company's Research Efforts Regarding the Treatment of OSA with Cannabinoids

The poor tolerance and long-term adherence to CPAP, as well as the limitations of mechanical devices and surgery, make discovery of therapeutic alternatives clinically relevant and important. RespireRx's translational research results demonstrate that dronabinol has the potential to become the first drug treatment for this large and underserved market.

The Company conducted a 21-day, randomized, double-blind, placebo-controlled, dose escalation Phase 2A clinical study in 22 patients with OSA, in which dronabinol produced a statistically significant reduction in AHI, the primary therapeutic end-point, and was observed to be safe and well tolerated, with the frequency of side effects no different from placebo. This clinical trial provided data allowing for the submission of patent applications claiming unique dosage strengths and controlled release formulations optimized for use in the treatment of OSA. If approved, these pending patents would extend market exclusivity until at least 2031.

With approximately $5 million in funding from the National Heart, Lung and Blood Institute of National Institutes of Health ("NIH"), Dr. David Carley of UIC, along with his colleagues at UIC and Northwestern University, completed a Phase 2B multi-center, double-blind, placebo-controlled clinical trial of dronabinol in patients with OSA. This study, named "Pharmacotherapy of Apnea with Cannabimimetic Enhancement" ("PACE") replicated the earlier Phase 2A study. The authors reported that, in a dose-dependent fashion, treatment with 2.5mg and 10mg of dronabinol once a day at night, significantly reduced, compared to placebo, AHI during sleep in 56 evaluable patients with moderate to severe OSA who completed the study. Additionally, treatment with 10mg of dronabinol significantly improved daytime sleepiness as measured by the Epworth Sleepiness Scale and achieved the greatest overall patient satisfaction. As in the previous Phase 2A study, dronabinol was observed to be safe and well tolerated, with the frequency of side effects no different from placebo. The Company did not manage or fund this clinical trial which was funded by the National Heart, Lung and Blood Institute of NIH.

We initially believed that the most direct route to commercialization was to proceed directly to a Phase 3 pivotal clinical trial using the currently available, FDA approved (for other indications), generically available dronabinol gel cap formulation and to commercialize, within the present RespireRx public corporate structure, a RespireRx branded dronabinol capsule under a 505(b)(2) FDA regulatory pathway in the United States. (see "Proposed Regulatory Process" below). We planned to follow this product with a proprietary formulation. However, several recent developments have caused us to re-evaluate this approach and to consider accelerating the development of a new proprietary formulation, as well as implementing an internal restructuring plan that contemplates spinning out the cannabinoid platform into what initially would be a wholly-owned subsidiary of RespireRx ("Newco", official name not yet determined) for the purpose of developing pharmaceutical cannabinoids. Newco's initial primary focus will be the re-purposing of dronabinol for the treatment of OSA, using a new proprietary formulation.

Newco

We are considering the formation of Newco for reasons described below, among others.

- Prospective Management

We recently hired Mr. Timothy Jones, highly experienced in the cannabinoid industry, to serve as the President and Chief Executive Officer of RespireRx, and have approached certain key opinion leaders to sit on Newco's scientific advisory board ("SAB"). However, we cannot provide assurance that the SAB candidates will join us.

- Business Plan

A detailed business plan with *pro forma* budgets has been prepared, which describes our strategy and plans for developing and commercializing the dronabinol platform for the treatment of OSA, including a review of the market opportunity, clinical development and regulatory pathway.

- Key contracts

A joint development and supply agreement that is in place with Purisys LLC ("Purisys"), a subsidiary of Noramco, Inc., a leading dronabinol manufacturer and our license with UIC, will need to be transferred or otherwise made available to Newco. While Newco's initial, primary focus will be on re-purposing dronabinol for the treatment of OSA, we believe that our broad enabling patents and a new proprietary formulation may provide a framework for expanding into the larger burgeoning pharmaceutical cannabinoid industry. We believe that by creating Newco, it may be possible, through separate finance channels and potential strategic transactions, to optimize the asset value not only of the cannabinoid platform, but our neuromodulation platform as well.

- Prospective Investors

Within the last 15 months, members of senior management of RespireRx have accepted invitations to be major speakers at several international pharmaceutical cannabinoid conferences. Due to the COVID-19 (SARS-CoV-2) pandemic, these conferences have been rescheduled and senior management intends to speak at such events once rescheduled. We have had discussions with a number of potential cannabinoid investors and strategic partners who have expressed interest, mostly in the development of a new, proprietary formulation with extended patent life, with essentially no interest in our neuromodulator platform. Our assessment is that such potential investors or strategic partners, while apparently willing to accept the risks of a cannabinoid platform, are not interested in subjecting their cannabinoid investment or efforts to the risks of the neuromodulator platform. Alternatively, other potential investors and strategic partners might be interested in the neuromodulators independent of the cannabinoid platform.

- Intellectual Property

RespireRx has exclusive rights to issued and pending patents claiming cannabinoid compositions and methods for treating cannabinoid-sensitive disorders, including sleep apnea, pain, glaucoma, muscular spasticity, anorexia and other conditions. In October 2019, we filed a continuation-in-part for our pending patent that describes and claims novel doses, controlled release compositions and methods of use for cannabinoids, as well as a new U.S. provisional patent application further disclosing novel dosage and controlled release compositions and methods of use for cannabinoids, alone or in combination, including with non-cannabinoid molecules. Specific claims describe low dosage strengths and controlled release formulations for attaining a therapeutic window of cannabinoid blood levels that produce the desired therapeutic effect(s) for a controlled period of time, while minimizing undesirable side effects. As previously disclosed, the original patents were filed by RespireRx and are now included in an exclusive license agreement with UIC. While no assurance can be provided that the claims in this continuation-in-part or the U.S. provisional patent application will be allowed in whole or in part, or that the patents will ultimately issue, we believe that these new filings, if allowed, will provide market protections through at least 2031.

We believe our intellectual property initiatives may afford expanding strategic options and market exclusivity in the burgeoning pharmaceutical cannabinoid business sector. New cannabinoid formulation technology is headed in the direction of enhanced absorption and controlled release. These technologies, including nano- and micro-emulsions and thin films, have been shown to bypass the normal route of absorption and liver metabolism of cannabinoids, thus dramatically increasing blood levels and allowing for the use of low doses. Similarly, technologies may be used to achieve a controlled release of dronabinol. New cannabinoid formulation technology is headed in the direction of enhanced absorption and controlled release. We believe that our pending patent priority relating back to 2010 predates the efforts of others seeking to develop low-dose or extended release formulations of cannabinoids. Thus, to the extent that new technologies result in lower doses and/or controlled release formulations, we believe they would infringe on our pending patents once issued, not only for use in the treatment of OSA but potentially a wide variety of other indications as well. For these reasons, we believe our new and continuing intellectual property initiatives may afford expanding strategic options and market exclusivity in the burgeoning pharmaceutical cannabinoid business sector.

Data from our Phase 2 clinical trials has allowed us to design new proprietary formulations of dronabinol, disclosed in our patent filings and optimized for the treatment of not only OSA, but also other indications. Within the past 6 to 12 months, new formulation technology has emerged potentially allowing for the creation of a proprietary dronabinol formulation with optimized dose and duration of action for treating OSA. We have discussions in progress with a number of companies that have existing cannabinoid formulation technologies, expertise, and licensure capabilities, which may lead to the development of a proprietary formulation of dronabinol for RespireRx based on RespireRx’s pending patents for low-dose and extended release dronabinol and may lead to the development of a marketable proprietary formulation of dronabinol. We believe that the development of a novel, proprietary formulation of dronabinol would only extend time to market entry by approximately 12 months compared to the currently available generic soft gel capsules, but would dramatically extend market exclusivity; however, no assurance can be provided that any of the formulation technologies that we are currently analyzing will result in viable products or that formulation agreements will be consummated on terms acceptable to us, if successful. The failure to consummate a formulation agreement would materially and adversely affect the Company.

- The Opportunity to Improve Dronabinol Formulations

Dronabinol is currently marketed as a soft gelatin capsule that suffers from several major deficiencies:

a. Dronabinol exhibits poor and erratic absorption. Δ9-THC is not water soluble. The market dominant commercial gel cap dronabinol is currently formulated as a sesame oil-based liquid within a soft gelatin capsule. The absorption of dronabinol after oral administration is poor and highly variable with some patients achieving very high levels and others achieving very low levels. This erratic absorption may be responsible for the variable therapeutic responses observed in dronabinol clinical trials. Syndros®, on the other hand, is formulated as a solution in dehydrated alcohol, polyethylene glycol and other materials and exhibits its own challenges and deficiencies, including but not limited to it being Schedule II as compared to the capsule that is Schedule III.

b. Dronabinol is rapidly and extensively (approximately 80%) metabolized upon first pass through the liver, resulting in low blood levels. Additionally, dronabinol has a relatively short half-life (approximately 3 – 4 hours) and, in its present formulation, is not optimally suited for therapeutic indications requiring blood levels to be sustained for 6 hours or longer.

c. In order to achieve sustained, therapeutic blood levels, we have found it necessary to use higher doses of dronabinol in our OSA clinical trials. For example, over an 8-hour period, the 2.5 and 10 mg doses produced therapeutically equivalent effects during the first 4 hours, but only the 10 mg dose produced therapeutic effects during the second 4 hours (see below for details). Unfortunately, the 10 mg dose produces a higher occurrence of side effects than the 2.5 mg dose (as described in the Marinol® package insert). We anticipate focusing on new formulations that would achieve the blood levels produced by the lower doses for a sustained time period, resulting in the desired therapeutic effect(s) while minimizing undesirable side effects.

- Large Commercial Opportunity

As a serious public health issue, the important need for diagnosing and ultimately treating OSA has recently been highlighted by the FDA clearance of several sleep apnea home test kits that are now third party reimbursed. Further highlighting this need, CVS Health Corporation (NYSE: CVS) recently has announced the implementation of a program to diagnose and treat OSA initially within their own in-store, walk-in MinuteClinics. If implemented throughout their HealthHUB store network, the number of people diagnosed with sleep apnea and eligible for treatment should increase dramatically. Fitbit (NYSE: FIT), the health oriented smart watch company is seeking clearance from the FDA to diagnose sleep apnea. We believe that the combination of more efficient and patient friendly diagnostic procedures and, ultimately, pharmaceutical treatments such as those we are developing will encourage more patients to seek diagnosis and treatment. As noted above, there are approximately 29 million OSA patients in the U.S. and an additional 26 million in Germany and 8 million in the United Kingdom. There are currently no drugs approved for the treatment of OSA.

As noted below in “Proposed Regulatory Process,” there are several ways to achieve market exclusivity with respect to this large and underserved patient population.

- Proposed Regulatory Process

The use of dronabinol for the treatment of OSA is a novel indication for an already approved drug and, as such, the Company believes that it would allow us or a development partner to submit a 505(b)(2) New Drug Application (“NDA”) to the FDA for approval of a new dronabinol label, as opposed to the submission and approval of a full 505(b)(1) NDA. The 505(b)(2) NDA was created by the Hatch-Waxman Amendments to the Federal Food, Drug and Cosmetic Act, as amended, in part, to help avoid unnecessary duplication of studies already performed on a previously approved drug; the section gives the FDA express permission to rely on data not developed by the NDA applicant. A 505(b)(2) NDA contains full safety and effectiveness reports but allows at least some of the information required for NDA approval, such as safety and efficacy information on the active ingredient, to come from studies not conducted by or for the applicant. This can result in a less expensive and faster route to approval, compared with a traditional development path, such as 505(b)(1), while still allowing for the creation of new, differentiated products. This regulatory path offers market protections under the Hatch-Waxman Act, as amended, and the rules promulgated thereunder, providing for market exclusivity. Other regulatory routes are available to pursue proprietary formulations of dronabinol that will provide further market protections. In Europe, a regulatory approval route similar to the 505(b)(2) pathway is the hybrid procedure based on Article 10 of Directive 2001/83/EC.

In conjunction with its management and consultants, RespireRx has developed a regulatory strategy in which we intend to file a new NDA under Section 505(b)(2) claiming the efficacy and safety of our proposed proprietary dronabinol formulation in the treatment of OSA. We have engaged regulatory consultants who will assist with FDA filings and regulatory strategy. If we can secure sufficient financing, of which no assurance can be provided, we anticipate requesting a pre-IND (pre-investigational new drug application) meeting with the FDA. This meeting also could create the type of dialogue with the FDA that is normally communicated at an end-of Phase 2 meeting. The FDA responses to this meeting will be incorporated into an IND, which we believe we could be in a position to submit within 60 days of receiving their communication.

The 505(b)(2) process begins with a pre-IND meeting with the FDA, which will involve discussions of formulation and safety, as well as certain required preclinical and clinical trials. If we can secure sufficient financing, of which no assurance can be provided, we plan to propose conducting the appropriate clinical studies with our proprietary controlled release formulation in OSA patients to determine safety, pharmacokinetics and efficacy, as well as a standard Phase 1 clinical study to determine potential abuse liability. When a Phase 3 study is required for a 505(b)(2), usually only one study with fewer patients is necessary versus the two, large scale, confirmatory studies generally required for the standard 505(b)(1) NDA. While no assurance can be provided, with an extensive safety database tracking chronic, long-term use of Marinol® and generics, we believe that FDA should not have major safety concerns with dronabinol in the treatment of OSA.

RespireRx has worked with the PACE investigators and staff, as well as with our Clinical Advisory Panel to design a Phase 3 protocol that, based on the experience and results from the Phase 2A and Phase 2B trials, we believe will provide sufficient data for FDA approval of a RespireRx dronabinol controlled release formulation for OSA. The current version of the protocol is designed as a 90-day randomized, blinded, placebo-controlled study of dronabinol in the treatment of OSA. Depending on feedback from the FDA, RespireRx estimates that the Phase 3 trial would require between 120 and 300 patients at 15 to 20 sites, and take 18 to 24 months to complete, at a cost of between $10 million and $14 million. Subject to raising sufficient financing, of which no assurance can be provided, RespireRx intends to submit the Phase 3 protocol to the FDA.

Also, subject to raising sufficient financing, of which no assurance can be provided, RespireRx intends to hire Clinilabs Drug Development Corporation (“Clinilabs”), a full-service CRO, to consult and potentially provide clinical site management, monitoring, data management, and centralized sleep monitoring services for the Phase 3 OSA trial. Dr. Gary Zammitt, CEO of Clinilabs, serves on the RespireRx Clinical Advisory Panel, and his management team has provided guidance on study design and CNS drug development that will be relevant for the Phase 3 program. For example, Clinilabs offers specialized clinical trial services for CNS drug development through an alliance with Neuroclinics, including clinical trials examining the effects of drugs on driving, cognitive effects of food and (medicinal) drugs, and sleep and sleep disordered breathing.

On September 4, 2018, RespireRx entered into a dronabinol Development and Supply Agreement with Noramco Inc., one of the world’s major dronabinol manufacturers. Noramco subsequently assigned this agreement (as assigned, the “Purisys Agreement”) to its subsidiary, Purisys, LLC (“Purisys”). Under the terms of the Purisys Agreement, Purisys has agreed to (i) provide all of the active pharmaceutical ingredient (“API”) estimated to be needed for the clinical development process for both the first- and second-generation products (each a “Product” and collectively, the “Products”), three validation batches for New Drug Application (“NDA”) filing(s) and adequate supply for the initial inventory stocking for the wholesale and retail channels, subject to certain limitations, (ii) maintain or file valid drug master files (“DMFs”) with the FDA or any other regulatory authority and provide the Company with access or a right of reference letter entitling the Company to make continuing reference to the DMFs during the term of the agreement in connection with any regulatory filings made with the FDA by the Company, (iii) participate on a development committee, and (iv) make available its regulatory consultants, collaborate with any regulatory consulting firms engaged by the Company and participate in all FDA or Drug Enforcement Agency (“DEA”) meetings as appropriate and as related to the API.

In consideration for these supplies and services, the Company has agreed (i) to purchase exclusively from Purisys, during the commercialization phase, all API for its Products (as defined in the Purisys Agreement) at a pre-determined price subject to certain producer price adjustments and (ii) to Purisys's participation in the economic success of the commercialized Product or Products up to the earlier of the achievement of a maximum dollar amount or the expiration of a period of time.

II. ***Neuromodulators - Project Endeavor - Ampakines and GABA-A***

Neurotransmitters are chemicals released by neurons that enable neurons to communicate with one another. This process is called neurotransmission. Neurons release neurotransmitters that attach to a very specific protein structure, termed a receptor, residing on an adjacent neuron. This neurotransmission process can either increase or decrease the excitability of the neuron receiving the message. For example, glutamate is the primary excitatory neurotransmitter in the brain, while gamma-amino-butyric acid ("GABA") is the primary inhibitory neurotransmitter. While the neurotransmitter attachment site on these receptors remains the same, the receptor protein subunit structures can vary so that the receptors can produce a variety of effects, including ion flow into the neurons or enzyme activity within the cells. Certain receptors for these neurotransmitters are composed of protein subunits that assemble so as to form a pore, known as an ion channel. In the case of the alpha-amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid glutamate ("AMPA") receptor, the binding of glutamate or an artificial agonist to its attachment site causes a change in the structure of the AMPA receptor ion channel and increases the flow of cations (positively charged ions) into the cell, resulting in an increased excitability. Likewise, in the case of the gamma-amino-butyric acid type A ("GABA-A") receptor, the binding of GABA or an artificial agonist to its attachment site causes a change in the structure of the GABA-A receptor ion channel and increases the flow of chloride ions (anion – negatively charged) into the cell, resulting in a decreased excitability.

Neuromodulators do not act directly at the neurotransmitter binding site, but instead act at accessory sites that enhance (Positive Allosteric Modulators – "PAMs") or reduce (Negative Allosteric Modulators – "NAMs") the actions of neurotransmitters at their primary receptor sites. Neuromodulators have no intrinsic activity of their own. We believe that neuromodulators offer the possibility of developing "kinder and gentler" neuropharmacological drugs with greater pharmacological specificity and reduced side effects compared to present drugs, especially in disorders for which there is a significant unmet or poorly met clinical need such as Attention Deficit Hyperactivity Disorder ("ADHD"), Autism Spectrum Disorder ("ASD"), Fragile X Syndrome ("FSX") and central nervous system ("CNS") driven disorders. We are focused presently on developing drugs that act as PAMs at the AMPA and GABA-A receptors.

Building upon our ampakine platform as a foundation, we also are planning the establishment of a second business unit, Project Endeavor, that will focus on developing novel neuromodulators for disorders due to alterations in neurotransmission. Through an extensive series of translational studies from the cellular level up to human Phase 2 clinical trials, selected ampakines have demonstrated target site engagement and positive results in patients with Attention Deficit Hyperactivity Disorder (see below).

Ampakines

Ampakines development for ADHD, FXS and ASD, spinal cord injury ("SCI") and Other CNS-driven Disorders

ADHD

ADHD is one of the most common neurobehavioral disorders, with 6.1% of American children reportedly taking medication for treatment, and ADHD is estimated to affect 7.8% of U.S. children aged 4 to 17 according to the U.S. Centers for Disease Control and Prevention ("CDC"), or approximately 4.5 million children. The principal characteristics of ADHD are inattention, hyperactivity and impulsivity, symptoms that are known to persist into adulthood. In a study published in *Psychiatry Res in May 2010,* up to 78% of children affected by this disorder showed at least one of the major symptoms of ADHD when followed up 10 years later. According to the CDC, approximately 4% of the US adult population has ADHD, which can negatively impair many aspects of daily life, including home, school, work and interpersonal relationships.

Currently available treatments for ADHD include amphetamine-type stimulants and non-stimulant agents targeting monoaminergic neurotransmitter systems in the brain. However, these neurotransmitter systems are not restricted to the brain and are widely found throughout the body. Thus, while these agents can be effective in ameliorating ADHD symptoms, they also can produce adverse cardiovascular effects, such as increased heart rate and blood pressure. Existing treatments also affect eating habits and can reduce weight gain and growth in children and have been associated with suicidal ideation in adolescents and adults. In addition, approved stimulant treatments are DEA-classified as controlled substances and present logistical issues for distribution and protection from diversion. Approved non-stimulant treatments, such as atomoxetine (Strattera® and its generic equivalents), can take four to eight weeks to become effective and undesirable side effects also have been observed.

Various investigators have generated data supporting the concept that alterations in AMPA receptor function might underlie the production of some of the symptoms of ADHD. In rodent and primate models of cognition, ampakines have been demonstrated to reduce inattention and impulsivity, two of the cardinal symptoms of ADHD. Furthermore, ampakines do not stimulate spontaneous locomotor activity in either mice or rats, unlike the stimulants presently used for the treatment of ADHD, nor do they increase the stimulation produced by amphetamine or cocaine. These preclinical considerations prompted us to conduct a randomized, double-blind, placebo controlled, two period crossover study to assess the efficacy and safety of CX717 in adults with ADHD.

In a repeated measures analysis, a statistically significant treatment effect on ADHD Rating Scale (ADHD-RS), the primary outcome measure, was observed after a three-week administration of CX717, 800 mg BID. Differences between this dose of CX717 and placebo were seen as early as week one of treatment and continued throughout the remainder of the study. The low dose of CX717, 200 mg BID, did not differ from placebo. In general, results from both the ADHD-RS hyperactivity and inattentiveness subscales, which were secondary efficacy variables, paralleled the results of the total score. CX717 was considered safe and well tolerated.

Based on these clinical results, ampakines such as CX717 might represent a breakthrough opportunity to develop a non-stimulating therapeutic for ADHD with the rapidity of onset normally seen with stimulants. Subject to raising sufficient financing (of which no assurance can be provided), we are planning to continue this program with a Phase 2B clinical trial in patients with adult ADHD using one of our two lead ampakine compounds.

FXS and ASD

According to the Autism Society, more than 3.5 million Americans live with an ASD, a complex neurodevelopmental disorder. FXS is the most common identifiable single-gene cause of autism, affecting approximately 1.4 in every 10,000 males and 0.9 in every 10,000 females, according to the CDC. Individuals with FXS and ASD exhibit a range of abnormal behaviors comprising hyperactivity and attention problems, executive function and cognitive deficits, hyper-reactivity to stimuli, anxiety and mood instability. Also, according the Autism Society, the prevalence rate of ASD has risen from 1 in 150 children in 2000 to 1 in 68 children in 2010, with current estimates indicating a significant rise in ASD diagnosis to 1 in 59 births, placing a significant emotional and economic burden on families and educational systems. The Autism Society estimates the economic cost to U.S. citizens of autism services to be between $236 and $262 billion annually.

Since “autistic disturbances” were first identified in children in 1943, extensive research efforts have attempted to identify the genetic, molecular, environmental, and clinical causes of ASD, but until recently the underlying etiology of the disorder remained elusive. Today, there are no medications that can treat ASD or its core symptoms, and only two anti-psychotic drugs, aripiprazole and risperidone, are approved by the United States Food and Drug Administration (“FDA”) for the treatment of irritability associated with ASD.

Thanks to wide ranging translational research efforts, FXS and ASD are currently recognized as disorders of the synapse with alterations in different forms of synaptic communication and neuronal network connectivity. Focusing on the proteins and subunits of the AMPA receptor complex, autism researchers at the University of San Diego (“UCSD”) have proposed that AMPA receptor malfunction and disrupted glutamate signal transmission may play an etiologic role in the behavioral, emotional and neurocognitive phenotypes that remain the standard for ASD diagnosis. For example, Stargazin, also known as CACNG2 (Ca2+ channel γ2 subunit), is one of four closely related proteins recently categorized as transmembrane AMPA receptor regulating proteins (“TARPs”).

Researchers at UCSD have been studying genetic mutations in the AMPA receptor complex that lead to cognitive and functional deficiencies along the autism spectrum. They work with patients and their families to conduct detailed genetic analyses in order to better understand the underlying mechanisms of autism. In one case, they have been working with a teenage patient who has an autism diagnosis, with a phenotype that is characterized by subtle Tourette-like behaviors, extreme aggression, and verbal and physical outbursts with disordered thought. Despite the behaviors, his language is normal. Using next generation sequencing and genome editing technologies, the researchers identified a specific mutation in Stargazin that alters the configuration and kinetics of the AMPA receptor. When the aberrant sequence was introduced into C57bL6 mice using CRISPR (Clustered Regulatory Interspaced Short Palindromic Repeats), the heterozygous allele had a dominant negative effect on the trafficking of post-synaptic AMPA receptors and produced behaviors consistent with a glutamatergic deficit and similar to what has been observed in the teenage patient.

With funding from the National Institutes of Health to UCSD, RespireRx is working with UCSD to explore the use of ampakines for the amelioration of the cognitive and other deficits associated with AMPA receptor gene mutations. Because CX1739 has an open investigational new drug ("IND") application, subject to securing sufficient outside funding (of which no assurance can be provided), we are considering a Phase 2A clinical trial late in 2020.

SCI

Ampakines also may have potential utility in the treatment and management of SCI to enhance motor functions and improve the quality of life for SCI patients. An estimated 17,000 new cases of SCI occur each year in the United States, most a result of automobile accidents. Currently, there are roughly 282,000 people living with spinal cord injuries, which often produce impaired motor function.

SCI can profoundly impair neural plasticity leading to significant morbidity and mortality in human accident victims. Plasticity is a fundamental property of the nervous system that enables continuous alteration of neural pathways and synapses in response to experience or injury. One frequently studied model of plasticity is long-term facilitation of motor nerve output ("LTF"). A large body of literature exists regarding the ability of ampakines to stimulate neural plasticity, possibly due to an enhanced synthesis and secretion of various growth factors.

Recently, studies of acute intermittent hypoxia ("AIH") in patients with SCI demonstrate that neural plasticity can be induced to improve motor function. This LTF is based on physiological mechanisms associated with the ability of spinal circuitry to learn how to adjust spinal and brainstem synaptic strength following repeated hypoxic bouts. Because AIH induces spinal plasticity, the potential exists to harness repetitive AIH as a means of inducing functional recovery of motor function following SCI.

RespireRx has been working with Dr. David Fuller, at the University of Florida with funding from the National Institutes of Health, to evaluate the use of ampakines for the treatment of compromised motor function in SCI. Using mice that have received spinal hemisections, CX717 was observed to increase motor nerve activity bilaterally. The effect on the hemisected side was greater than that measured on the intact side, with the recovery approximating that seen on the intact side prior to administration of ampakine. In addition, CX717 was observed to produce a dramatic and long-lasting effect on LTF produced by AIH. The doses of ampakines active in SCI were comparable to those demonstrating antagonism of OIRD, indicating target engagement of the AMPA receptors.

These animal models of motor nerve function following SCI support proof of concept for a new treatment paradigm using ampakines to improve motor functions in patients with SCI. With additional funding granted by NIH to Dr. Fuller, RespireRx is continuing its collaborative preclinical research with him while it is planning a clinical trial program focused on developing ampakines for the restoration of certain motor functions in patients with SCI. The Company is working with our Clinical Advisory Panel and with researchers at highly regarded clinical sites to finalize a Phase 2 clinical trial protocol. We believe that a clinical study could be initiated within several months of raising sufficient financing. Currently, we do not have a source of such financing and we can provide no assurance that we will be able to secure sufficient funding.

Other CNS-driven Disorders

Since its formation in 1987, the Company has been engaged in the research and clinical development of ampakines. Ampakines are PAMs of the AMPA glutamate receptor. They enhance the excitatory actions of the neurotransmitter glutamate at the AMPA receptor complex, which mediates most excitatory transmission in the CNS. These drugs do not have agonistic or antagonistic properties but instead positively modulate the receptor rate constants for transmitter binding, channel opening, and desensitization. We currently are developing two lead clinical compounds, CX717 and CX1739, and one pre-clinical compound, CX1942. These compounds belong to a new class of ampakines that do not display the electrophysiological and biochemical effects that led to undesirable side effects, namely convulsive activities, previously reported in animal models of earlier generations.

The Company owns patents and patent applications, or the rights thereto, for certain families of chemical compounds, including ampakines, which claim the chemical structures, their actions as ampakines and their use in the treatment of various disorders. Patents claiming a family of chemical structures, including CX1739 and CX1942, as well as their use in the treatment of various disorders extend through at least 2028. Additional patent applications claiming the use of ampakines in the treatment of certain neurological and neuropsychiatric disorders, such as ADHD have been filed.

In 2007, we determined that expansion of our strategic development into the areas of central respiratory dysfunction, including drug-induced respiratory dysfunction, represented cost-effective opportunities for potentially rapid development and commercialization of RespireRx's compounds. On May 8, 2007, RespireRx entered into a license agreement, as subsequently amended, and no longer in effect with the University of Alberta granting RespireRx exclusive rights to method of treatment patents held by the University of Alberta claiming the use of ampakines for the treatment of various respiratory disorders. These patents, along with RespireRx's own patents claiming chemical structures, comprised RespireRx's principal intellectual property supporting RespireRx's research and clinical development program in the use of ampakines for the treatment of central and drug-induced respiratory disorders. The Company is currently not pursuing respiratory indications for ampakines, at least in part because the license with the University of Alberta is no longer in effect. Much of the work performed while the license was in effect, has informed the Company's new programs.

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 have clinical application in the treatment of neurobehavioral disorders, CNS-driven respiratory disorders, spinal cord injury, neurological diseases, and orphan indications. We had been addressing CNS-driven respiratory disorders that affect millions of people, but for which there are few treatment options and limited drug therapies, including opioid induced respiratory disorders, such as apnea (transient cessation of breathing) or hypopnea (transient reduction in breathing). When these symptoms become severe, as in opioid overdose, they are the primary cause of opioid lethality.

RespireRx is committed to advancing the ampakines through the clinical and regulatory path to approval and commercialization. Until recently, RespireRx has focused on the ampakines' ability to antagonize opioid induced respiratory depression both as a translational tool to verify target engagement, as well as an eventual commercial indication. We believe the loss of approximately 69,000 lives in our country in the one-year period ending February 2019 alone demands that new solutions for opioid induced deaths be developed to ensure the public health.

RespireRx had previously completed pre-clinical studies indicating that several of its ampakines, including CX717, CX1739 and CX1942, were efficacious in treating drug induced respiratory depression caused by opioids or certain anesthetics without altering the analgesic effects of the opioids or the anesthetic effects of the anesthetics. The results of our preclinical research studies have been replicated in three separate Phase 2A human clinical trials with two ampakines, CX717 and CX1739, confirming the translational mechanism and target site engagement and demonstrating proof of principle that ampakines act as PAMs of AMPA receptors in humans and may be able to be used in humans for the prevention of opioid induced apnea. In addition, RespireRx has conducted a Phase 2A clinical study in which patients with sleep apnea were administered CX1739, RespireRx's lead clinical compound. The results suggested that CX1739 might have use as a treatment for central sleep apnea ("CSA") and mixed sleep apnea, but not OSA.

Based on these initial results, the Company conducted preclinical and clinical research with CX1739, CX717 and CX1942 in the prevention, treatment, and management of opioid induced apnea, the primary cause of overdose deaths. In particular, we had conducted several Phase 2 clinical trials demonstrating that both CX717 and CX1739 significantly reduced opioid induced respiratory depression ("OIRD") without altering analgesia. Since one of the primary risk factors for opioid overdose is CSA, it is significant that a Phase 2A clinical study with CX1739 produced data suggesting a possible reduction in central sleep apnea. Because there are neither drugs nor devices approved to treat CSA, Company management believed there might be potential for a rapid path to commercialization.

Unfortunately, rather than support novel approaches to opioid treatment, the recent public and governmental discourses regarding the "opioid epidemic" have focused almost entirely on the distribution of naloxone, an opioid antagonist used for acute emergency situations, so-called "non-abuseable" opioid formulations, means of reducing opioid consumption by limiting production of opioids and access to legal opioid prescriptions and the development of non-opioid analgesics. It remains to be seen whether these approaches will have an impact on the situation. Nevertheless, as a result, we believe that there is an ongoing industry-wide pullback from opioids, as evidenced by a reduction in opioid prescriptions and a major reduction in manufacturing by two of the largest opioid manufacturers in the United States.

These factors have made it difficult to raise capital or find strategic partners for the development of ampakines for the treatment of opioid induced respiratory depression and we have decided not to pursue this program at this time. We have decided not to attempt to enter into a new license agreement with TEC Edmonton ("TEC Edmonton"), an affiliate of the University of Alberta, at this time and are suspending the development of this program until the political climate is clarified and we are able to either raise funding or enter into a strategic relationship for this purpose. Nevertheless, the valuable data derived from these translational studies have established antagonism of OIRD as a biomarker for demonstrating proof of principle and target engagement in support of continued ampakine development for other indications.

GABA-A Receptor PAMs

In order to expand the asset base of Project Endeavor, we have entered into the UWMRF Option Agreement with UWMRF whereby RespireRx has a six-month option commencing on March 2, 2020, to license, certain intellectual property regarding chemical compounds that act as PAMs at certain sub-type specific receptors for GABA, the major inhibitory transmitter in the brain (see Notes 1, 2 and 8 in the Notes to condensed consolidated financial statements as of March 31, 2020). Certain of these compounds have shown impressive activity in a broad range of animal models of refractory/resistant epilepsy and other convulsant disorders, as well as in brain tissue samples obtained from epileptic patients. Epilepsy is a chronic and highly prevalent neurological disorder that affects millions of people world-wide. While many anticonvulsant drugs have been approved to decrease seizure probability, seizures are not well controlled and, in as many as 60-70% of patients, existing drugs are not efficacious at some point in the disease progression. We believe that the medical and patient community are in clear agreement that there is desperate need for improved antiepileptic drugs. In addition, these compounds have shown positive activity in animal models of migraine, inflammatory and neuropathic pain, as well as other areas of interest. Because of their GABA receptor subunit specificity, the compounds have a greatly reduced liability to produce sedation, motor incoordination, memory impairments and tolerance, side effects commonly associated with non-specific GABA PAMs, such as benzodiazepines.

This program would officially become a RespireRx program upon exercise of the option to enter into the license agreement under the UWMRF Option Agreement on or prior to September 2, 2020. The exercise of the option is conditioned upon, among other things, contractual commitment for at least one million dollars of aggregate financing to the Company. There is no guaranty that we will be able to obtain such commitment.

The GABA-A receptor is a pentameric neurotransmitter gated chloride ion channel composed of five transmembrane protein subunits. Multiple cDNAs that encode GABA-A receptor subunits have been cloned and, based on sequence homology, eight subunit families (α, β, γ, δ, ε, θ, π, ρ) comprising 20 distinct gene products have been identified. Based on just the α, β and γ subunits, immunoprecipitation studies suggest the presence of perhaps 10 distinct heteropentamers, creating a considerable degree of receptor subtype heterogeneity.

Benzodiazepines (BDZ), such as Valium® (diazepam), Librium® (chlordiazepoxide) and Xanax® (alprazolam) were the first major class of drugs reported to act as GABA-A PAMs, by binding at a site distinct from the binding site for GABA. These drugs produced a wide range of pharmacological properties, some desirable some not, including anxiety reduction, sedation, hypnosis, anti-convulsant, muscle relaxation, respiratory depression, cognitive impairment, as well as tolerance, abuse and withdrawal. For this reason, it was not surprising that benzodiazepines were observed to act as GABA PAMs indiscriminately across all GABA-A receptor subtypes. Following the identification of BDZ binding sites on GABA-A receptors, Dr. Lippa described CL218,872, the first non-BDZ to demonstrate that these receptors were heterogeneous by binding selectively to a subtype of GABA-A receptor. This demonstration of receptor heterogeneity led to the hypothesis that the various pharmacological actions of the BDZs might be separable. In animal testing, CL218,872 provided the proof of principle that such a separation could be achieved by displaying 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.

While CL218,872 was not clinically tested in humans, a related derivative compound, ocinaplon, displayed similar receptor subtype selectivity and also produced the same pharmacological profile in animal studies as did CL218,872. In Phase 1 clinical studies, ocinaplon was safe and well-tolerated with no BDZ-like effects noted. In two Phase 2 clinical trials in patients suffering from chronic general anxiety disorder (GAD), ocinaplon produced a rapid, highly significant reduction in anxiety scores with no evidence of BDZ-like side effects. Development of ocinaplon was halted due to elevations in liver function tests observed in a small number of patients during the conduct of a larger Phase 3 clinical trial. Nevertheless, these results with ocinaplon greatly reinforced the hypothesis that drugs could be developed that selectively produced certain therapeutic effects of the BDZs without displaying their undesirable side effects.

Over the last several years, a group of scientists led by Drs. James Cook and Jeffrey Witkin, now advisors to our Project Endeavor, have synthesized and tested a broad series of novel drugs that display GABA-A receptor subtype selectivity and pharmacological specificity. Dr. Cook is a Distinguished Professor of Chemistry at University Wisconsin-Milwaukee with more than 40 years' experience in organic and medicinal chemistry. He is a leading expert in GABA-A receptor drug targeting, with more than 480 scientific publications and 50 patents. Dr. Witkin, now at the University of Wisconsin-Milwaukee, spent 17 years directing the 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.

Certain of these chemical compounds are the subject of an option agreement entered into on March 2, 2020, by the Company and UWMRF, an affiliate of the University of Wisconsin-Milwaukee, pursuant to which RespireRx has a six-month option to license the intellectual property identified in United States Patents 9,006,233, 9,597,342, and 10,259,815 and Canadian patent application serial No. 2979701, and all other patents and patent applications in lineage with these priority applications, including PCT (Patent Cooperation Treaty) , utility, divisional, continuation, continuation-in-part, and any corresponding patent applications filed in countries foreign to the United States of America and Canada with priority dates prior to the effective date of the License Agreement.

Of these compounds, we have emphasized KRM-II-81as a clinical lead. KRM-II-81 is the most advanced and druggable of a series of compounds that display certain receptor subtype selective and pharmacological specificity.
In studies using cell cultures, brain tissues and whole animals, KRM-II-81acts as a GABA-A PAM at selective GABA-A receptor subtypes that we feel are intimately involved in neuronal processes underly epilepsy, pain, anxiety and certain other indications. KRM-II-81 has demonstrated highly desirable properties in animal models of epilepsy, pain, anxiety and certain other potential therapeutic indications, in the absence of or with greatly reduced liability to produce sedation, motor incoordination, cognitive impairments, respiratory depression, tolerance, abuse and withdrawal seizures, all side effects associated with benzodiazepines. We currently are focused on the potential treatment of epilepsy and pain.

Epilepsy

Epilepsy is a chronic and highly prevalent neurological disorder that affects millions of people world-wide and has serious consequences for the life of the affected individual. A first-line approach to the control of epilepsy is through the administration of anticonvulsant drugs. Repeated, uncontrolled seizures and the side effects arising from seizure medications have a negative effect on the developing brain and can lead to brain cell loss and severe impairment of neurocognitive function. The continued occurrence of seizure activity also increases the probability of subsequent epileptic events through sensitization mechanisms called seizure kindling. Seizures that are unresponsive to anti-epileptic treatments are life-disrupting and life-threatening with broad health, life, and economic consequences.

Like many diseases, epilepsy is still remarkably underserved by currently available medicines. Pharmaco-resistance to anticonvulsant therapy continues to be one of the key obstacles to the treatment of epilepsy. Although many anticonvulsant drugs are approved to decrease seizure probability, seizures are not fully-controlled and patients are generally maintained daily on multiple antiepileptic drugs with the hope of enhancing the probability of seizure control. Despite this polypharmacy approach, as many as 60 to 70% of patients continue to have seizures. As a result of the lack of seizure control, pharmaco-resistant epilepsy patients, including young children, sometimes require and elect to have invasive therapeutic procedures such as surgical resection or disconnection (Hwang and Kim, 2019).

Despite the availability of a host of marketed drugs of different mechanistic classes, the lack of seizure control in patients is the primary factor driving the need for improved antiepileptic drugs emphasized by researchers and patient advocacy communities (e.g., http://advocacy.epilepsy.com). Increasing inhibitory tone in the central nervous system through enhancement of GABAergic inhibition is a proven mechanism for seizure control. However, GABAergic medications also exhibit liabilities that limit their antiepileptic potential. Tolerance develops to GABAergic drugs such as benzodiazepines, limiting their use in a chronic setting. These drugs can produce cognitive impairment, somnolence, sedation, tolerance and withdrawal seizures that create dosing limitations such that they are generally used only for acute convulsive episodes.

KRM-II-81 has demonstrated efficacy in multiple rodent models and measures of antiepileptic drug efficacy *in vivo*. This includes 9 acute seizure provocation models in mice and rats, 4 seizure sensitization models in rats and mice, 2 models of chronic epilepsy, and 3 models specifically testing pharmaco-resistant antiepileptic drug efficacy. Because it appears to have a greatly reduced side effect liability, it might be possible to use higher, more effective doses that standard of care medications. Predictions of superior efficacy of KRM-II-81 over standard of care anti-epileptics comes from the efficacy of this compound across a broad range of epileptic modeling conditions. Importantly, KRM-II-81 has been shown to be effective in models assessing pharmaco-resistant epilepsy. Under these conditions, KRM-II-81 is efficacious in cases where standard of care medicines do not work.

In the absence of seizure control by anti-epileptics, surgical resection of affected brain tissue and associated neural circuits is one potential alternative to help with the control of seizures. In the process of this surgery, epileptic brain tissue can become available for research into epileptic mechanisms and the identification of novel antiepileptic drugs. The anticonvulsant action of KRM-II-81 was confirmed by microelectrode recordings from slices obtained from freshly excised cortex from epileptic patients where KRM-II-81 suppressed epileptiform electrical activity. While preliminary, these translational data lend considerable support to the further development of KRM-II-81 for the treatment of epilepsy.

Pain

It is impossible not to be aware of the crisis that the “opioid epidemic” has created in the treatment of chronic pain. While there is no question as to their efficacy, the clinical use of opiates is severely limited due to the rapid development of tolerance and the production of respiratory depression, the major cause of opioid-induced lethality. Research programs are underway nationwide to discover and develop new non-opioid drugs that are effective analgesics without the tolerance and abuse liability ascribed to the opioids. Chronic pain is especially difficult to treat due to its complex nature with a variety of different etiologies. For example, chronic pain may be produced by injury, surgery, the inflammation produced by arthritis or by certain drugs such as cancer chemotherapeutics. For these reasons, management and control of chronic pain continues to be a serious gap in medical practice with multiple alternative medicines that either lack critical efficacy and/or produce unacceptable side-effects.

Data from both preclinical and clinical studies are consistent with the idea that GABAergic neurotransmission is an important regulatory mechanism for the control of pain. Gabapentin (Neurontin) and pregabalin (Lyrica) two commonly used drugs for the treatment of chronic pain are believed to produce their analgesic effects by enhancing GABAergic neurotransmission. However, although they have received FDA approval, the clinical results have not been overwhelming. In a published review of 37 clinical trials in which gabapentin was compared to placebo in a total of 5914 patients with neuropathic pain, 30% of patients with chronic pain caused by shingles reported a pain reduction of $\geq$50% as compared to 30% for patients receiving placebo. In patients with neuropathic pain caused by diabetes, 40% reported a pain reduction of $\geq$50% as compared to 20% for patients receiving placebo. The most common side effects produced by gabapentin were sedation, dizziness and problems walking. It is uncertain whether greater efficacy was not observed because of poor intrinsic pharmacological efficacy or insufficient dosages due to dose limiting side effects.

An alternate approach to enhancing GAGAergic neurotransmission, is the use of GABA-A PAMs. This approach has been under-utilized because of the general lack of efficacy of the 1,4-benzodiazepine GABA modulators. However, a strong case for the potential value of subtype selective GABA-A PAMs for the treatment of pain can be made. First, GABA-A receptor regulated pathways are integral to pain processing with α2/3 containing GABA-A receptor subtypes present on nerve pathways modulating pain sensation and perception. Second, we believe that the analgesic properties of benzodiazepines may be masked by concurrent activation of other receptor subtypes that mediate the side effects. Diazepam has been reported to produce maximal analgesia if the side effects are attenuated by GABA-A subtype genetic manipulation. Third, predecessor compounds, made by Dr. Cook, that selectively amplify α2/3- GABA-A receptor signaling are effective in pain models in rodents at doses lower than those producing motor side effects.

In a number of laboratory procedures, KRM-II-81has been shown to selectively bind to α2/3- GABA-A receptors and enhance GAGAergic neurotransmission. In rodents, KRM-II-81 facilitated GABA-A neurotransmission in the dorsal root ganglion, a primary sensory relay in the pain pathway. In addition, oral administration of KRM-II-81 to rats attenuated formalin-induced pain behaviors and the chronic pain engendered by chronic spinal nerve ligation. KRM-II-81 was also active against acute pain provocation (e.g., acid-induced pain) and inflammatory pain. More recently, KRM-II-81 was shown to be effective against chronic pain induced by a chemotherapeutic agent. Sub-chronic dosing for 22 days with KRM-II-81 and the structural analog, MP-III-80, demonstrated enduring analgesic efficacy without tolerance development. In contrast, tolerance developed to the analgesic effects of gabapentin. At a dose that produces maximal analgesic effect in an inflammatory chronic pain model, KRM-II-81 does not substitute for the benzodiazepine, midazolam, in a drug discrimination assay, suggesting a reduced abuse liability. Furthermore, KRM-II-81 did not produce the respiratory depression observed with alprazolam, a major problem with benzodiazepines leading to emergency room visits and overdose (Warner *et al*, 2016).

We believe that the ability to attenuate both acute and chronic pain combined with a greatly reduced side effect profile, a lack of tolerance and a reduced abuse potential makes KRM-II-81a promising clinical lead and a potential advance in pain therapeutics. Results from preliminary chemistry, metabolism and pharmacokinetic studies support its further development.

Technology Rights

University of Illinois License Agreement

See Note 8. Commitments and Contingencies – Significant Agreements and Contracts – *University of Illinois 2014 Exclusive License Agreement* to our condensed consolidated financial statements at March 31, 2020.

As of March 31, 2020, the Company received an extension of time to make a $100,000 payment that would have due on such date until June 30, 2020.

UWMRF Option Agreement

See Notes 1, 2 and 8 to our condensed consolidated financial statements at March 31, 2020.

Going Concern

See Note 2. Business – *Going Concern* to our condensed consolidated financial statements at March 31, 2020.

The Company's regular efforts to raise capital and to evaluate measures to permit sustainability are time-consuming and intensive. Such efforts may not prove successful and may cause distraction, disruption or other adversity that limits the Company's development program efforts.

Recent Accounting Pronouncements

See Note 2 to the Company's condensed consolidated financial statements at March 31, 2020.

Management does not believe that any recently issued, but not yet effective, authoritative guidance, if currently adopted, would have a material impact on the Company's financial statement presentation or disclosures.

Concentration of Risk

See Note 2. Significant Accounting Policies – *Concentration of Credit Risk* to the Company's condensed consolidated financial statements at March 31, 2020.

See Note 8. Commitments and Contingencies – *University of Illinois 2014 Exclusive License Agreement* to the Company's condensed consolidated financial statements at March 31, 2020.

Critical Accounting Policies and Estimates

The Company prepared its condensed consolidated financial statements in accordance with accounting principles generally accepted in the United States of America. The preparation of these condensed consolidated financial statements requires the use of estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements and the reported amount of revenues and expenses during the reporting period. Management periodically evaluates the estimates and judgments made. Management bases its estimates and judgments on historical experience and on various factors that are believed to be reasonable under the circumstances. Actual results may differ from these estimates as a result of different assumptions or conditions.

Critical accounting policies and estimates are described in the notes to the Company's condensed consolidated financial statements and include:

- Stock-based awards
- Research and Development Costs
- License Agreements
- Patent Costs
- Convertible Notes

See Critical Accounting Policies and Estimates in our Annual Report on Form 10-K for the fiscal year ended December 31, 2019 for a complete description.

Results of Operations

The Company's consolidated statements of operations as discussed herein are presented below.

	Three-months Ended March 31, (unaudited)	
	2020	**2019**
Operating expenses:		
General and administrative	365,280	324,513
Research and development	155,920	149,350
Total operating costs and expenses	520,570	473,863
Loss from operations	(520,570)	(473,863)
Loss on extinguishment of debt in exchange for equity	(323,996)	-
Interest expense	(140,710)	(81,112)
Foreign currency transaction gain (loss)	38,558	14,643)
Net loss attributable to common stockholders	$ (946,718)	$ (540,332)
Net loss per common share - basic and diluted	$ (0.14)	$ (0.14)
Weighted average common shares outstanding - basic and diluted	6,686,602	3,085,263

Three-months Ended March 31, 2020 and 2019

Revenues. The Company had no revenues during the three-months ended March 31, 2020 and 2019.

General and Administrative. For the three-months ended March 31, 20120 general and administrative expenses were $365,280, an increase of $40,767, as compared to $324,513 for the three-months ended March 31, 2019. The increase in general and administrative expenses for the three-months ended March 31, 2020, as compared to the three-months ended March 31, 2019, is primarily due to an increase in general legal fees of $67,033, primarily related to legal fees associated with the UWMRF Option Agreement, the note exchange agreements, the preparation and filing with the SEC of the information statement related to the stockholder vote without a meeting and our Annual Report on Form 10-K for the fiscal year ended December 31, 2019, offset by decreases in patent legal and other patent fees of $26,676 and the net effect of increases and decreases other general and administrative expenses.

There was no stock-based compensation in general and administrative expenses for the three-months ended March 31, 2020 or 2019.

Research and Development. For the three-months ended March 31, 2020, research and development expenses were $155,290, an increase of $5,940, as compared to $149,350 for the three-months ended March 31, 2019. The increase in research and development expenses for the three-months ended March 31, 2020, as compared to the three-months ended March 31, 2019, is primarily a result of utilization of Food and Drug Administration (“FDA”) consultants.

There was no stock-based compensation in research and development expenses for the three-months ended March 31, 2020 or 2019.

Loss on Extinguishment of Convertible Debt. The loss on extinguishment of convertible debt during the three-months ended March 31, 2020 was $323,996 as compared to $0 in the three-months ended March 31, 2019. On March 21, 2020, the Company entered into exchange agreements with several note holders and exchanged an aggregate of $255,786 of principal and accrued interest for 17,052,424 shares of the Company’s stock with an exchange price of $0.015 per share which was less than the closing price of $0.034 per share. There was no loss on extinguishment of convertible debt during the three-months ended March 31, 2019.

Interest Expense. During the three-months ended March 31, 2020, interest expense was $140,710 as compared to $81,112 for the three-months ended March 31, 2019. The increase of $59,958 is primarily the result of interest and amortization of note discounts to interest expense with respect to the 2019 Notes.

Foreign Currency Transaction (Loss) Gain. Foreign currency transaction gain was $38,558 for the three-months ended March 31, 2020, as compared to a foreign currency transaction gain of $14,643 for the three-months ended March 31, 2019. The foreign currency transaction (loss) gain relates to the $399,774 loan from SY Corporation Co., Ltd., formerly known as Samyang Optics Co. Ltd., made in June 2012, which is denominated in the South Korean Won.

Net Loss Attributable to Common Stockholders. For the three-months ended March 31, 2020, the Company incurred a net loss of $946,718 as compared to a net loss of $540,332 for the three-months ended March 31, 2019. Included in the net loss for the three-months ended March 31, 2020 is a loss on the extinguishment of debt of 323,996.

Liquidity and Capital Resources - March 31, 2019

The Company's condensed consolidated financial statements have been presented on the basis that it is a going concern, which contemplates the realization of assets and satisfaction of liabilities in the normal course of business. The Company has incurred net losses of $946,718 and net losses from operations of $520,570 for the three-months ended March 31, 2020 and $2,115,033 for the fiscal year ended December 31, 2019, and negative operating cash flows of $17,859 for the three-months ended March 31, 2020 and $487,745 for the fiscal year ended December 31, 2019, had a stockholders' deficiency of $7,451,419 at March 31, 2020, and expects to continue to incur net losses and negative operating cash flows for at least the next few years. As a result, management has concluded that there is substantial doubt about the Company's ability to continue as a going concern, and the Company's independent registered public accounting firm, in its report on the Company's consolidated financial statements for the year ended December 31, 2019, expressed substantial doubt about the Company's ability to continue as a going concern.

At March 31, 2020, the Company had a working capital deficit of $7,451,419, as compared to a working capital deficit of $7,444,819 at December 31, 2019 reflecting an increase in the working capital deficit of $6,600 for the three-months ended March 31, 2020.

At March 31, 2020, the Company had cash aggregating $81, as compared to $16,690 at December 31, 2019, reflecting a decrease in cash of $$16,609 for the three-months ended March 31, 2020.

The Company is currently, and has for some time, been in significant financial distress. It has extremely limited cash resources and current assets and has no ongoing source of revenue. Management is continuing to address numerous aspects of the Company's operations and obligations, including, without limitation, debt obligations, financing requirements, intellectual property, licensing agreements, legal and patent matters and regulatory compliance, and has taken steps to continue to raise new debt and equity capital to fund the Company's business activities.

The Company is continuing its efforts to raise additional capital in order to be able to pay its liabilities and fund its business activities on a going forward basis and regularly evaluates various measures to satisfy the Company's liquidity needs, including development and other agreements with collaborative partners and seeking to exchange or restructure some of the Company's outstanding securities. The Company is evaluating certain changes to its operations and structure to facilitate raising capital from sources that may be interested in financing only discrete aspects of the Company's development programs. Such changes could include a significant reorganization. Though the Company actively pursues opportunities to finance its operations through external sources of debt and equity financing, it has limited access to such financing and there can be no assurance that such financing will be available on terms acceptable to the Company, or at all.

Operating Activities. For the three-months ended March 31, 2020, operating activities utilized cash of $17,859, as compared to utilizing cash of $137,786 for the three-months ended March 31, 2019, to support the Company's ongoing general and administrative expenses as well as its research and development activities.

Financing Activities. For the three-months ended March 31, 2020, financing activities consisted of the $70,762 financing of a new directors and officers insurance policy, a $1,250 advance from an executive officer. For the three-months ended March 31, 2019 consisted of borrowings on convertible notes with warrants of $110,000 and the financing with a short-term note of $61,746 in connection with the directors and officers insurance policy.

Principal Commitments

Employment Agreements

See Note 8. Commitments and Contingencies – Significant Agreements and Contracts – *Employment Agreements* to our condensed consolidated financial statements at March 31, 2020.

University of Illinois 2014 Exclusive License Agreement

See Note 8. Commitments and Contingencies – Significant Agreements and Contracts – *University of Illinois 2014 Exclusive License Agreement* to our condensed consolidated financial statements at March 31, 2019.

UWM Research Foundation Option Agreement

See Note 8. Commitments and Contingencies – Significant Agreements and Contracts, UWM Research Foundation Option Agreement to our condensed consolidated financial statement at March 31, 2020.

A table setting forth the Company's principal cash obligations and commitments for the next five fiscal years as of March 31, 2020, aggregating $805,600, is set forth in Note 8. Commitments and Contingencies – *Summary of Principal Cash Obligations and Commitments*

Off-Balance Sheet Arrangements

At March 31, 2020, the Company did not have any transactions, obligations or relationships that could be considered off-balance sheet arrangements.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURE ABOUT MARKET RISK

Not applicable.

ITEM 4. CONTROLS AND PROCEDURES

(a) Evaluation of Disclosure Controls and Procedures

The Company maintains disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the "Exchange Act") that are designed to ensure that information required to be disclosed in the reports that the Company files with the Securities and Exchange Commission (the "SEC") under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms and that such information is accumulated and communicated to the Company's management, including its Chief Executive Officer and Chief Financial Officer, to allow for timely decisions regarding required disclosures.

The Company carried out an evaluation, under the supervision and with the participation of its management, consisting of its principal executive officer and principal financial officer, of the effectiveness of the Company's disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) of the Exchange Act). Based upon that evaluation, the Company's principal executive officer and principal financial officer concluded that, as of the end of the period covered in this report, the Company's disclosure controls and procedures were not effective to ensure that information required to be disclosed in reports filed under the Exchange Act is recorded, processed, summarized and reported within the required time periods and is accumulated and communicated to the Company's management, consisting of the Company's principal executive officer and principal financial officer, to allow timely decisions regarding required disclosure.

Management has been focusing on developing replacement controls and procedures that are adequate to ensure that information required to be disclosed in reports filed under the Exchange Act is recorded, processed, summarized and reported within the required time periods and is accumulated and communicated to the Company's management to allow timely decisions regarding required disclosure. Management has instituted a program to reestablish the Company's accounting and financial staff and install new accounting and internal control systems, and has retained accounting personnel, established accounting and internal control systems, addressed the preparation of delinquent financial statements, and worked diligently to bring current delinquent SEC filings as promptly as reasonably possible under the circumstances. The Company is current in its SEC periodic reporting obligations, but as of the date of the filing of this report, the Company had not yet completed the process to establish adequate internal controls over financial reporting. In February 2017, the Company's Chief Financial Officer resigned and one of the existing officers was appointed Interim Chief Financial Officer and subsequently, Chief Financial Officer. The Company has not completed its search for a permanent replacement.

The Company's management, consisting of its principal executive officer and principal financial officer, does not expect that its disclosure controls and procedures or its internal controls will prevent all error or fraud. A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Furthermore, the design of a control system must reflect the fact that there are resource constraints and the benefits of controls must be considered relative to their costs. Due to the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, have been detected. In addition, as conditions change over time, so too may the effectiveness of internal controls. However, management believes that the financial statements included in this report fairly present, in all material respects, the Company's financial condition, results of operations and cash flows for the periods presented.

(b) Changes in Internal Controls over Financial Reporting

The Company's management, consisting of its principal executive officer and principal financial officer, has determined that no change in the Company's internal control over financial reporting (as that term is defined in Rules 13(a)-15(f) and 15(d)-15(f) of the Securities Exchange Act of 1934) occurred during or subsequent to the end of the period covered in this report that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting.

PART II - OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

We are periodically subject to various pending and threatened legal actions and claims. See Note 8. Commitments and Contingencies – *Pending or Threatened Legal Actions and Claims* to our condensed consolidated financial statements at March 31, 2020 for details regarding these matters.

ITEM 1A. RISK FACTORS

As of the date of this filing, there have been no material changes to the Risk Factors included in the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2019, as filed with the SEC on April 14, 2020 (the "2018 Form 10-K"). The Risk Factors set forth in the 2019 Form 10-K should be read carefully in connection with evaluating the Company's business and in connection with the forward-looking statements contained in this Quarterly Report on Form 10-Q. Any of the risks described in the 2019 Form 10-K could materially adversely affect the Company's business, financial condition or future results and the actual outcome of matters as to which forward-looking statements are made. These are not the only risks that the Company faces. Additional risks and uncertainties not currently known to the Company or that the Company currently deems to be immaterial also may materially adversely affect the Company's business, financial condition and/or operating results.

ITEM 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS

There were no unregistered sales of equity securities during the three-months ended March 31, 2020 that were not disclosed by the Company on a Current Report on Form 8-K . There were exchanges of convertible notes inclusive of accrued interest as well as forgiveness of accrued compensation and related issuances of the Company's common stock on March 21, 2020 and March 22, 2020 respectively. See Note 4. Notes Payable – *Convertible Notes Payable* of our condensed consolidated financial statements at March 31 2020 and Part I, Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations – *Liquidity and Capital Resources – March 31, 2020.*

Additional information with respect to the transactions described above is provided in the Notes to the Condensed Consolidated Financial Statements for the three-months ended March 31, 2019.

ITEM 3. DEFAULTS UPON SENIOR SECURITIES

Note Payable to SY Corporation Co., Ltd.

On June 25, 2012, the Company borrowed 465,000,000 Won (the currency of South Korea, equivalent to approximately $400,000 United States Dollars) from and executed a secured note payable to SY Corporation, an approximately 20% common stockholder of the Company at that time. SY Corporation was a significant stockholder and a related party at the time of the transaction, but was not considered a significant stockholder or related party subsequent to December 31, 2015. The note accrues simple interest at the rate of 12% per annum and had a maturity date of June 25, 2013. The Company has not made any payments on the promissory note. At June 30, 2013 and subsequently, the promissory note was outstanding and in technical default, although SY Corporation has not issued a notice of default or a demand for repayment. The Company believes that SY Corporation is in default of its obligations under its January 2012 license agreement, as amended, with the Company, but the Company has not yet issued a notice of default. The Company has in the past made several efforts towards a comprehensive resolution of the aforementioned matters involving SY Corporation. During the three-months ended March 31, 2019, there were no further communications between the Company and SY Corporation.

Note payable to SY Corporation consists of the following at March 31, 2020 and December 31, 2019:

	March 31, 2020	December 31, 2019
Principal amount of note payable	$ 399,774	$ 399,774
Accrued interest payable	375,241	363,280
Foreign currency transaction adjustment	(35,376)	3,182
	$ 739,639	$ 766,236

Interest expense with respect to this promissory note was $11,960 and $11,829 for the three-months ended March 31, 2020 and 2019, respectively.

Default on Convertible Notes Payable

At March 31, 2020, the amount owed on the one remaining Original Convertible Note in default was $44,948, including principal and interest.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

ITEM 5. OTHER INFORMATION

The information below is reported in lieu of information that would be reported under Items 1.01 and 2.03 under Form 8-K.

Amendment to Convertible Promissory Note with Crown

The information below is reported in lieu of information that would be reported under Items 1.01 and 2.03 under Form 8-K.

As previously disclosed by RespireRx on its Current Report on Form 8-K filed on May 23, 2019, on May 17, 2019, RespireRx and Crown Bridge Partners, LLC ("Crown") entered into a Securities Purchase Agreement (the "Crown Agreement") by which Crown committed to provide net proceeds of one or more loans of up to $135,000 (the "Consideration") to RespireRx in return for a convertible promissory note (the "Crown Note") with a face amount of up to $150,000, a common stock purchase warrant, a share reservation increase agreement, and a confession of judgment, among other agreements and obligations.

Among the terms of the Crown Agreement and the Crown Note, Crown must pay $45,000 of the Consideration (the "First Tranche") within a reasonable amount of time after the full execution of the transaction documents related to the Crown Note. Each Tranche, together with fees and interest, is payable by RespireRx 12 months from the effective date of each payment by Crown (each such date, a "Maturity Date").

On May 17, 2020, RespireRx and Crown entered into an amendment (the "Crown Amendment") to the Crown Note that extended the Maturity Date of the First Tranche to November 17, 2020. All other aspects of the note remain unchanged.

The descriptions of the Crown Agreement, the Crown Note and the additional associated documents do not purport to be complete and are qualified in their entirety by the related descriptions and exhibits contained in RespireRx's Current Report on Form 8-K filed May 23, 2019, and are incorporated herein by reference. The description of the Crown Amendment does not purport to be complete and is qualified in its entirety by reference to the full text of the Crown Amendment, which will be filed as an exhibit to our Quarterly Report on Form 10-Q for the quarter ended June 30, 2020.

Amendment to Convertible Promissory Note with FirstFire

Separately, as previously disclosed by RespireRx on its Current Report on Form 8-K filed on August 27, 2019, on August 19, 2019, RespireRx and FirstFire Global Opportunities Fund, LLC ("FirstFire") entered into a Securities Purchase Agreement (the "FirstFire Agreement") by which FirstFire committed to provide net proceeds of $50,000 (the "Consideration") to RespireRx in return for a convertible promissory note (the "FirstFire Note") with a face amount of up to $55,000, among other agreements and obligations.

On May 18, 2020, FirstFire informed the Company that it considered the FirstFire Note and accrued interest thereunder to have been paid in full with the final conversion on May 14, 2020, notwithstanding minimal amounts of accrued interest that technically remained outstanding.

The descriptions of the FirstFire Agreement, the FirstFire Note and the additional associated documents do not purport to be complete and are qualified in their entirety by the related descriptions and exhibits contained in RespireRx's Current Report on Form 8-K filed August 27, 2019, and are incorporated herein by reference.

ITEM 6. EXHIBITS

INDEX TO EXHIBITS

The following documents are filed as part of this report:

Exhibit Number	Description of Document
10.1	Company Option Agreement, dated as of March 2, 2020, by and between the UWM Research Foundation, Inc. and RespireRx Pharmaceuticals Inc. (incorporated by reference to the Company's Current Report on Form 8-K (file no. 1-16467) filed March 4, 2020).†
10.2	Form of Exchange Agreement (incorporated by reference to the Company's Current Report on Form 8-K (file no. 1-16467) filed March 26, 2020).
31.1*	Officer's Certification Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2*	Officer's Certification Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1**	Officer's Certification Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2**	Officer's Certification Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS***	XBRL Instance Document
101.SCH***	XBRL Taxonomy Extension Schema Document
101.CAL***	XBRL Taxonomy Extension Calculation Linkbase Document

101.LAB*** XBRL Taxonomy Extension Label Linkbase Document

101.PRE*** XBRL Taxonomy Extension Presentation Linkbase Document

101.DEF*** XBRL Taxonomy Extension Definition Linkbase Document

† Certain information in Exhibit 10.1 was omitted pursuant to Item 601(b)(10) of Regulation S-K because it is both not material and would be competitively harmful if publicly disclosed. When filing the document with its Current Report on Form 8-K, the Company undertook to furnish, supplementally, a copy of the unredacted exhibit to the Securities and Exchange Commission upon request.

* Filed herewith.

** Furnished herewith.

*** In accordance with Regulation S-T, the XBRL related information on Exhibit No. 101 to this Quarterly Report on Form 10-Q shall be deemed “furnished” herewith not “filed.”

SIGNATURES

In accordance with the requirements of the Securities and Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

RESPIRERX PHARMACEUTICALS INC.
(Registrant)

Date: May 20, 2020

By: */s/ Timothy Jones*
Timothy Jones
President and Chief Executive Officer

Date: May 20, 2020

By: */s/ Jeff Eliot Margolis*
Jeff Eliot Margolis
Senior Vice President, Chief Financial Officer, Treasurer and Secretary

EXHIBIT 31.1

CERTIFICATION OF CHIEF EXECUTIVE OFFICER
UNDER SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Timothy Jones, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of RespireRx Pharmaceuticals Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)), for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's Board of Directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: May 20, 2020

By: */s/ Timothy Jones*
Timothy Jones
Interim Chief Executive Officer

EXHIBIT 31.2

CERTIFICATION OF CHIEF FINANCIAL OFFICER
UNDER SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Jeff Eliot Margolis, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of RespireRx Pharmaceuticals Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)), for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's Board of Directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: May 20, 2020

By: */s/ Jeff Eliot Margolis*
Jeff Eliot Margolis
Chief Financial Officer

EXHIBIT 32.1

CERTIFICATION OF CHIEF EXECUTIVE OFFICER
UNDER SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

I, Timothy Jones, the Chief Executive Officer of RespireRx Pharmaceuticals Inc. (the "Company"), certify, pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, 18 U.S.C. Section 1350, that:

(i) The Quarterly Report on Form 10-Q of the Company for the quarterly period ended March 31, 2020, as filed with the Securities and Exchange Commission on the date hereof (the "Report") fully complies with the requirements of Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934; and

(ii) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

A signed original of this written statement required by Section 906 has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.

Date: May 20, 2020

By: */s/ Timothy Jones*
Timothy Jones
Chief Executive Officer

EXHIBIT 32.2

CERTIFICATION OF CHIEF FINANCIAL OFFICER
UNDER SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

I, Jeff Eliot Margolis, the Chief Financial Officer of RespireRx Pharmaceuticals Inc. (the "Company"), certify, pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, 18 U.S.C. Section 1350, that:

(i) The Quarterly Report on Form 10-Q of the Company for the quarterly period ended March 31, 2020, as filed with the Securities and Exchange Commission on the date hereof (the "Report") fully complies with the requirements of Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934; and

(ii) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

A signed original of this written statement required by Section 906 has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.

Date: May 20, 2020

By: */s/ Jeff Eliot Margolis*
Jeff Eliot Margolis
Chief Financial Officer