NRx Pharmaceuticals Reports Second Quarter 2023 Financial Results and Provides Business Update

August 14, 2023

Two near-term data catalysts expected in 2023

- *Entered active collaboration with Alvogen Pharmaceuticals and Lotus Pharmaceuticals for global development and commercialization of NRX-101 in suicidal bipolar depression; potential for up to $330 million in milestones and double-digit royalties*
- *Publication of STABIL-B trial in the International Journal of Bipolar Disorders: first oral antidepressant to demonstrate reduction in suicidality with significant improvement in depression scores compared to standard of care medication*
- *Ongoing Phase 2b/3 trial of NRX-101 in suicidal bipolar depression is within 20 patients of data readout. Data expected in Q4 2023*
- *Newly released data demonstrate high levels of compliance and inter-rater reliability*
- *Licensed US Patent for use of D-Cycloserine (DCS) to treat chronic pain*
- *Announced plan to develop NRX-101™ for chronic pain indications, awaiting results of 200 person DOD-funded trial in treatment of chronic pain with DCS in coming months*
- *Filing Investigational New Drug application with FDA to treat chronic pain with NRX-101*
- *Management to host a conference call today at 4:30 PM ET*

RADNOR, Pa., Aug. 14, 2023 /PRNewswire/ -- NRx Pharmaceuticals, Inc. (Nasdaq: NRXP) ("NRx Pharmaceuticals", the "Company"), a clinical-stage biopharmaceutical company, today announced its financial results for the second quarter ended June 30, 2023, and provided a business update.

"We anticipate multiple near-term data catalysts in our suicidal bipolar depression and chronic pain clinical programs. Our internal focus has been on driving our ongoing phase 2b/3 trial to a data readout, which we expect in Q4 2023. The newly-published peer-reviewed results from our phase 2 STABIL-B trial document that NRX-101 is the first oral antidepressant to demonstrate a statistically significant reduction in suicidality together with a statistically-significant reduction in depression compared to standard of care medication. Today, we have posted blinded results from our ongoing clinical trial documenting the 94% concordance in measurement of the primary endpoint (i.e. the MADRS depression scale) between our study sites and our internal master raters. Psychiatry trials often succeed or fail based on their ability to control the accuracy with which the endpoints are measured and this measure of Inter-rater reliability exceeds that reported in the published literature." said Stephen Willard, J.D., Chief Executive Officer and Director of NRx Pharmaceuticals. "We have now operationalized our collaboration with Alvogen Pharmaceuticals with teams of Alvogen and Lotus scientists working side by side with us to map and execute the late-stage development and global commercialization of NRX-101 for bipolar depression. This represents a substantial investment in corporate resources on the part of our partner, which, in our view, both de-risks the NRX-101 drug development program and reduces the future dilution to our shareholders that would otherwise be associated with executing a phase 3 trial and commercial launch.

"The Alvogen collaboration and the prospect of support for phase 3 and commercial development of our bipolar depression program has afforded us the flexibility to expand our target indications of NRX-101 to the much larger indication of chronic pain. Whereas 7 million Americans are estimated to suffer from bipolar depression, more than 50 million Americans suffer from chronic pain. (Rikard SM, Strahan AE, Schmit KM, Guy Jr GP. Chronic pain among adults—United States, 2019–2021. Morbidity and Mortality Weekly Report. 2023;72(15):379.) We began our work in bipolar depression, a vital unmet medical need, at a time when opioids were a predominant treatment for chronic pain and market wisdom suggested that nonaddictive innovative drugs could not compete effectively with generic opioids. An overwhelming shift in public health policy and public awareness, creates an urgent need for non-addictive, non-neurotoxic treatments for chronic pain. We have shared with the public a comprehensive review paper detailing twenty years of nonclinical and early clinical research that suggests the potential for NRX-101 to treat chronic pain in a non-addictive manner that may actually decrease patient desire for opioids. That is the impetus for licensure of US Patent 8,653,120, which dovetails with our existing composition of matter protection for NRX-101. We await the near-term readout of the approximately 200 person clinical trial of DCS in Chronic Pain funded by the US Department of Defense (clinicaltrials.gov NCT03535688) that has now been concluded and awaits statistical readout. As previously announced, we have completed our phase 3 and commercial manufacturing program for NRX-101 and this week we are opening an Investigational New Drug file with the FDA for use of NRX-101 to treat chronic pain."

Second Quarter Clinical and Regulatory Highlights

NRX-101 Indication – Bipolar Depression with Suicidality

- NRX-101, a fixed dose combination of D-cycloserine and lurasidone, has been granted Fast Track Designation,

Breakthrough Therapy Designation, a Special Protocol Agreement, and a Biomarker Letter of Support from the FDA for Severe Bipolar Depression with Acute Suicidal Ideation. At the suggestion of FDA, the Company seeks to broaden that indication to Bipolar Depression with suicidality.

- The Company's STABIL-B trial was accepted for publication in the International Journal of Bipolar Disorders, a peer-reviewed publication (Nierenberg A, Lavin P, Javitt DC, et al. NRX-101 (D-cycloserine plus lurasidone) vs. lurasidone for the maintenance of initial stabilization after ketamine in patients with severe bipolar depression with acute suicidal ideation and behavior: a randomized prospective phase 2 trial. *Int J Bipolar Disord.* 2023;11(1):28. PMID:37573534 doi:10.1186/s40345-023-00308-5). The results document superiority of NRX-101 over lurasidone in controlling depression and suicidality in acutely suicidal patients following stabilization with ketamine.
- The Company similarly achieved peer-reviewed publication of its study demonstrating the lack of acute neurotoxicity with NRX-101 (https://journalbipolardisorders.springeropen.com/articles/10.1186/s40345-023-00308-5#citeas) and the lack of addictive potential for NRX-101 (Sapko MT, Hanania T, Chang Q, Javitt JC. D-cycloserine is not susceptible to self-administration using an intravenous self-administration model in male ketamine-habituated Sprague-Dawley rats. *Pharmacol Biochem Behav.* 2023;227-228:173586. PMID:37330114 doi:10.1016/j.pbb.2023.173586).
- In June, the Company announced an agreement with Alvogen Pharmaceuticals and Lotus Pharmaceuticals to fund the late-stage clinical trials of NRX-101 and to bring it to a global patient population with suicidality.
- Upon payment of the first $10 million milestone, triggered by positive clinical data from the ongoing trial and FDA comments, Alvogen will be responsible for all development, regulatory and commercial costs of NRX-101 in this indication.
- Under guidance from the FDA and based on the Company's completion of manufacturing for Phase 3 and commercial stage product, the ongoing clinical trial of NRX-101 compared with lurasidone in patients bipolar depression and suicidality (C-SSRS 3 and 4) has been upgraded to a Phase 2b/3 trial that will seek use as a registrational trial.
- Enrollment is ongoing in the multi-center, randomized, double-blind controlled Phase 2b/3 clinical trial of NRX-101 compared to lurasidone in Bipolar Depression with Suicidality. The study's objective is to demonstrate a decrease in depression scores (MADRS) and scores for suicidal ideation (CGI-SS) in patients treated with NRX-101 compared to those treated with lurasidone alone.(www.clinicaltrial.gov NCT03395392) The Phase 2 portion of the trial is designed to observe the effect in 70 patients with the option to expand enrollment if deemed appropriate by the Data Safety Monitoring Board at an interim readout.
- Today we have released data that provide insight into trial integrity :
    - Compliance with assigned medication is tracking above 90%, as reported by our Contract Research Organization, which exceeds expectation for a CNS study
    - As we report this week in the scientific literature (https://www.authorea.com/users/321659/articles/659448-real-time-quality-assurance-of-depression-ratings-in-psychiatric-clinical-trials), congruence of site administered depression ratings (MADRS) evaluations with our internal "master raters" are tracking above 94% for our 3 point congruence standard and above 97% for the less restrictive 6 point standard reported in the literature. This level of rating congruence exceeds that reported in the peer-reviewed literature and provides a basis for believing that the is collecting data that will be interpretable after unblinding.
- In March 2023, a Data Safety Monitoring Board (DSMB) meeting noted that the trial demonstrated non-futility and no unexpected safety concerns.
- Study enrollment has expanded with a data readout expected near year end 2023.

NRX-101 Indication – Chronic Pain

- In June 2023, concurrent with announcement of the Alvogen partnership, the Company announced an expansion of its NRX-101 program to encompass treatment of chronic pain as the next focus on NRX-101's development.
- Last week, the company announced the licensure of US Patent 8,653,120 related to the treatment of chronic pain with DCS and the addition of Dr. Vania Apkarian, Professor of Physiology, Anesthesia, Surgery, and Neuroscience Institute, Northwestern University Feinberg School of Medicine, to the NRx Scientific Advisory Board. Dr. Apkarian is the inventor of the patent and a global expert in pain research and has important experience studying DCS in chronic pain.
- Chronic pain is estimated to be a $72 billion industry today with the potential to grow to a $120 billion industry by 2033.
- DCS has been shown to modulate the Pain Pathway at each point in the neural chain of pain: transmission at dorsal horn of the spinal cord, pain perception in the thalamus ("paleo brain"), and pain memory and processing between the paleo brain and the cortex.
- In experimental models and clinical studies, NMDA antagonists have demonstrated attenuation of pain and shown potential in reducing opioid craving.
- Additionally, DCS has demonstrated no potential for addiction, unlike ketamine and other NMDA antagonists that bind to the "mu" opioid receptor.
- D-cycloserine was evaluated in a pilot study at Northwestern University and showed efficacy at the higher dose levels in the study (Schnitzer, 2016). DCS is currently being examined in a confirmatory trial funded by the US Department of Defense under the Congressionally Directed Medical Research Program. The trial seeks to recruit approximately 200 participants with chronic low back pain at Northwestern University (clinicaltrials.gov NCT03535688).[1] Data collection is complete and statistical results are expected in the coming months.
- Research conducted by NRx Pharmaceuticals demonstrated a 25 µg/ml dose at which D-cycloserine becomes an NMDA antagonist. The 400mg dose presented in the confirmatory trial at Northwestern University is at the lower end of the threshold and suggests that the ability to increase the D-cycloserine dose beyond 400mg, where lurasidone is used to prevent CNS side effects in NRX-101.

NRX-101 Indication – Post Traumatic Stress Disorder (PTSD)

- NRx plans to investigate NRX-101 in PTSD as an additional indication. The Company expects to commence planning for a Phase 2 clinical trial in 2023.
- Depression in PTSD may be driven by pathways that are similar to those that drive depression in other conditions (NMDA and 5-HT2A). Additionally, approximately 10% of patients with PTSD may experience suicidality, especially those with severe PTSD.
- In a preclinical PTSD study, D-cycloserine, a component of NRX-101, demonstrated the ability to extinguish recurring images of traumatic events, also known as fear memory, in a validated WKY model of PTSD. Ketamine has demonstrated an effect on this debilitating symptom of PTSD. Should NRX-101 have a similar beneficial effect, it has the potential to be the first labeled medicine for PTSD symptoms.

Second Quarter Corporate Updates

- On June 5, 2023, the Company announced it had entered a strategic partnership with Lotus Pharmaceuticals and Alvogen Pharmaceuticals to further work towards the development and commercialization of NRX-101 for suicidal treatment-resistant bipolar depression for global markets. Under the terms of the agreement, NRx is entitled to receive $10 million upon a successful Phase 2b/3 data readout and completion of an FDA Type B meeting. NRx is eligible to receive payment of $5 million upon receipt of FDA approval for NRX-101 as well as bonus milestone payments of up to $315 million based on reaching certain net sales targets. Further, NRx will receive royalty payments on net sales, which escalate to the mid-teens. Additionally, Lotus Pharmaceuticals will be responsible for commercialization of NRX-101 in markets outside of the U.S., while Alvogen will work with their CNS branded subsidiary, Almatica, to commercialize NRX-101 in the U.S. market.
- In June 2023, the Company closed a $6.28 million registered direct offering with H.C. Wainwright. NRx intends to use the net proceeds from the offering for working capital and general corporate purposes and may use the net proceeds to initiate research into the use of NRX-101 for the treatment of chronic pain and PTSD.
- In June 2023, the Company negotiated a payment arrangement with Streeterville Capital to reduce cash monthly redemptions of its loan to no more than $400,000 per month through year end 2023.

Financial Results for the Second Quarter Ended June 30, 2023

- For the three months ended June 30, 2023, NRx Pharmaceuticals recorded $3.9 million of research and development expenses compared to $3.0 million for the three months ended June 30, 2022. The increase of $0.9 million is related primarily to an increase of $1.3 million in clinical trials and development expenses related to the NRX-101 program for Suicidal Treatment-Resistant Bipolar Depression partially offset by a decrease in various other costs.
- For the six months ended June 30, 2023, NRx Pharmaceuticals recorded $7.5 million of research and development expenses compared to $8.4 million for the six months ended June 30, 2022. The decrease of $0.9 million is related primarily to a decrease of $0.6 million in clinical trials and development expenses related to ZYESAMI, $0.5 million related to fees paid to regulatory and process development consultants, $0.2 million in stock-based compensation, partially offset by an increase in various other costs.
- For the three months ended June 30, 2023, NRx Pharmaceuticals recorded $4.1 million of general and administrative expenses compared to $6.6 million for the six months ended June 30, 2022. The decrease of $2.5 million is related primarily to a decrease of $1.0 million in insurance expenses, $0.7 million in consultant fees, $0.7 million in legal, professional and accounting fees, partially offset by an increase in various other costs.
- For the six months ended June 30, 2023, NRx Pharmaceuticals recorded $9.9 million of general and administrative expenses compared to $16.9 million for the six months ended June 30, 2022. The decrease of $7.0 million is related primarily to a decrease of $4.6 million in legal, professional and accounting fees, $1.6 million in insurance expenses, $0.9 million in stock-based compensation expense, partially offset by an increase in various other costs.
- For the three months and ended June 30, 2023, NRx Pharmaceuticals recorded $8.7 million in net loss compared to $7.0 million for the quarter ended June 30, 2022. For the six months and ended June 30, 2023, NRx Pharmaceuticals recorded $19.8 million in net loss compared to $20.4 million for the quarter ended June 30, 2022.
- As of June 30, 2023, we had $15.0 million in cash and cash equivalents. These working capital assets are expected to fund the Company's operations through the fourth quarter of this year, which is when we expect data from our ongoing Phase 2b/3 trial. Additionally, we are evaluating operational efficiencies to extend this runway.

Conference Call and Webcast Details

A live webcast of the conference call will be available on the Company's website today at 4:30 p.m. ET, at https://ir.nrxpharma.com/news-events/ir-calendar. An archive of the webcast will be available on the Company's website for 30 days. Participants that are unable to join the webcast can access the conference call via telephone by dialing domestically +1 (833) 630-1956 or internationally +1 (412) 317-1837.

About NRX-101

NRX-101, a fixed dose combination of D-cycloserine and lurasidone, has been granted Fast Track Designation, Breakthrough Therapy Designation, a Special Protocol Agreement, and a Biomarker Letter of Support from the FDA for Bipolar Depression with Suicidality. NRX-101 is further being developed for chronic pain and PTSD.

Up to 50% of individuals with bipolar disorder attempt suicide over their lifetime, and estimates indicate that up to 20% may die by suicide. The only FDA-approved treatment for patients with suicidal bipolar depression remains electroconvulsive therapy.

Conventional antidepressants can increase the risk of suicide in certain patients; hence their labels contain a warning to that effect. NRX-101 is a patented, oral, fixed dose combination of D-cycloserine and lurasidone, neither of which has shown addiction potential in preclinical models. Based on the results of the STABIL-B trial, NRX-101 received Breakthrough Therapy Designation from the FDA for the treatment of patients with severe bipolar depression and acute suicidality after initial stabilization with ketamine or other effective therapy.

NRX-101 is one of the first oral antidepressants currently in late-stage clinical studies targeting the NMDA-receptor in the brain, which represents potentially a key new mechanism to treat depression with and without suicidality, as well as chronic pain, PTSD and other indications.

About NRx Pharmaceuticals

NRx Pharmaceuticals is a clinical-stage biopharmaceutical company developing therapeutics based on its NMDA platform for the treatment of central nervous system disorders, specifically suicidal bipolar depression, chronic pain and PTSD. The Company's lead program NRX-101, an oral, fixed-dose combination of D-cycloserine and lurasidone, targets the brain's N-methyl-D-aspartate (NMDA) receptor and is being developed for patients who suffer from suicidal bipolar depression and those who suffer from chronic pain. The Company has partnered with Alvogen Pharmaceuticals, who owns the worldwide rights to NRX-101 for treatment of bipolar depression with suicidality, to help bring NRX-101 to a global population of patients with unmet medical need. NRx Pharmaceuticals is currently exploring NRX-101's potential to act as a non-opioid chronic pain treatment option and is continuing to plan an exploratory trial in the treatment of PTSD.

Cautionary Note Regarding Forward-Looking Statements

This announcement of NRx Pharmaceuticals, Inc. includes "forward-looking statements" within the meaning of the "safe harbor" provisions of the U.S. Private Securities Litigation Reform Act of 1995, which may include, but are not limited to, statements regarding our financial outlook, product development, business prospects, and market and industry trends and conditions, as well as the Company's strategies, plans, objectives, and goals. These forward-looking statements are based on current beliefs, expectations, estimates, forecasts, and projections of, as well as assumptions made by, and information currently available to, the Company's management.

The Company assumes no obligation to revise any forward-looking statement, whether as a result of new information, future events or otherwise. Accordingly, you should not place reliance on any forward-looking statement, and all forward-looking statements are herein qualified by reference to the cautionary statements set forth above.

NRX PHARMACEUTICALS, INC.

CONDENSED CONSOLIDATED BALANCE SHEETS

(in thousands, except share and per share data)

	June 30, 2023	**December 31, 2022**
	(Unaudited)	
ASSETS		
Current assets:		
Cash and cash equivalents	$ 14,969	$ 20,054
Prepaid expenses and other current assets	4,819	5,741

Total current assets	19,788	25,795
Other assets	21	21
Total assets	$ 19,809	$ 25,816
LIABILITIES AND STOCKHOLDERS' (DEFICIT) EQUITY		
Current liabilities:		
Accounts payable	$ 2,205	$ 2,076
Accrued and other current liabilities	5,783	4,855
Accrued clinical site costs	1,115	914
Convertible note payable and accrued interest - short term	12,692	7,703
Insurance loan payable	786	—
Warrant liabilities	36	37
Total current liabilities	22,617	15,585
Convertible note payable and accrued interest - long term	—	2,822
Total liabilities	$ 22,617	$ 18,407
Preferred stock, $0.001 par value, 50,000,000 shares authorized; 0 shares issued and outstanding at June 30, 2023 and December 31, 2022, respectively	—	—
Common stock, $0.001 par value, 500,000,000 shares authorized; 80,388,330 and 66,442,989 shares issued and outstanding at June 30, 2023 and December 31, 2022, respectively	80	67

Additional paid-in capital	239,887	230,339
Accumulated other comprehensive (loss) income	(22)	—
Accumulated deficit	(242,753)	(222,997)
Total stockholders' (deficit) equity	(2,808)	7,409
Total liabilities and stockholders' (deficit) equity	$ 19,809	$ 25,816

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

NRX PHARMACEUTICALS, INC.

CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE LOSS

(in thousands, except share and per share data)

(Unaudited)

	Three months ended June 30,		Six months ended June 30,	
	2023	**2022**	**2023**	**2022**
Operating expenses:				
Research and development	$ 3,873	$ 2,958	$ 7,523	$ 8,441
General and administrative	4,065	6,642	9,850	16,864
Settlement expense	250	—	250	—
Total operating expenses	8,188	9,600	17,623	25,305
Loss from operations	(8,188)	(9,600)	(17,623)	(25,305)
Other (income) expenses:				
Interest income	(145)	(23)	(301)	(23)

Interest expense	—	—	—	3
Change in fair value of convertible note payable	663	—	2,435	—
Change in fair value of warrant liabilities	11	(116)	(1)	(273)
Change in fair value of Earnout Cash liability	—	(2,479)	—	(4,582)
Total other (income) expenses	529	(2,618)	2,133	(4,875)
Net loss	$ (8,717)	$ (6,982)	$ (19,756)	$ (20,430)
Change in fair value of convertible note attributed to credit risk	128	—	22	—
Other comprehensive loss	128	—	22	—
Comprehensive loss	$ (8,845)	$ (6,982)	$ (19,778)	$ (20,430)
Net loss per share:				
Basic and diluted	$ (0.12)	$ (0.11)	$ (0.28)	$ (0.32)
Weighted average common shares outstanding:				
Basic and diluted	73,221,563	65,732,343	70,260,622	64,348,966

[1] https://classic.clinicaltrials.gov/ct2/show/NCT03535688

SOURCE NRx Pharmaceuticals, Inc.