April 1, 2024

NRx Pharmaceuticals (Nasdaq:NRXP) Reports Fourth Quarter and Full Year 2023 Financial Results and Provides Business Update

Four potential near-term milestones, including data from two clinical trials, an NDA filing and an upcoming share dividend

-- 50% reduction in corporate overhead and 25% reduction in overall net loss in 2023, compared to 2024 with $0.20 per share improvement in negative earnings. Additions to working capital of $8 million in Q1 2024.

-- Company forecasts first commercial revenue in 2024 from sales of ketamine and related technologies. Company received advance of first milestone payments in 2024 for ongoing development of NRX-101 from Alvogen and Lotus Pharmaceuticals, Inc. (1975.TW)

-- Company announces new partnership around the first drug to potentially modify the underlying cause of schizophrenia

-- Data lock this week and top-line data expected this month, after completed enrollment of the Phase 2b/3 trial of NRX-101 in Treatment Resistant Bipolar Depression (TRBD); trial demonstrated 94% rater concordance, far in excess of industry norms and exceeded industry norms in medication compliance

-- Two new Investigational New Drug applications (INDs) accepted by the US Food and Drug Administration (FDA) for NRX-101 in Chronic Pain and Complicated UTI.

-- Data lock expected this week in 200-person DOD-funded trial of D-cycloserine (DCS), the key component of NRX-101, to treat chronic pain, conducted by Northwestern University

-- Grant of Qualified Infectious Disease Product (QIDP), Fast Track and Priority Review designations for NRX-101 in the treatment of Complicated Urinary Tract Infection (cUTI); Publication last week of QIDP-qualifying data in a peer-reviewed journal. NRx is reviewing partnership options

-- Established HOPE Therapeutics to develop and launch IV Ketamine together with related technologies with FDA New Drug Application to be submitted this year. In advance of FDA approval, HOPE is partnered with national 503b and 503a pharmacies to address the ketamine shortage declared by FDA. HOPE is planned to be spun out as a separate company to be owned by NRx, current NRx shareholders via a tax-free dividend, and new investors; Term Sheets received from prospective anchor investors for $60 million of new investment, once publicly listed

-- HOPE is presenting data from four randomized, prospective trials demonstrating safety and efficacy in 800 patients of IV Ketamine in treating severe and suicidal depression as the clinical basis for New Drug Application (NDA) for HTX-100 (IV Ketamine); expecting stability and CMC data sufficient for NDA filing by June 2024.

-- Added over $8 million in working capital, including an advance of a $5.1 million milestone payment from partners Alvogen, Inc. and Lotus Pharmaceuticals

-- Elected nationally recognized attorney in highly regulated industries, and healthcare specialist, Janet Rehnquist, Esq., to the Company's Board of Directors

-- Management has taken actions to address NASDAQ listing compliance and naked shorting of NRx securities

-- Management to host a conference call, April 1, 2024, at 8:30 AM ET

RADNOR, Pa., April 1, 2024 /PRNewswire/ -- NRx Pharmaceuticals, Inc. (Nasdaq: NRXP) ("NRx Pharmaceuticals", the "Company"), a clinical-stage biopharmaceutical company, today announced its financial results for the quarter and year ended December 31, 2023 and provided a business update.

"2023 was a pivotal year for NRx in which we advanced from a single clinical trial in a single indication to a dramatically streamline its operations with a 50% reduction in overhead costs, a 25% reduction in overall costs, and a $0.20 per share improvement in negative earnings, while completing our clinical trial objectives. We expect data from two key trials this month and predict our first commercial revenue by the end of 2024. Over the past year the Company has navigated the most challenging business environment in the history of the biotechnology industry. Despite unprecedented headwinds, we negotiated a critical commercial partnership for our lead compound in bipolar depression, while retaining rights to the far larger indications of chronic pain and PTSD," said Stephen Willard, J.D., Chief Executive Officer and Director of NRx Pharmaceuticals. "We augmented our intellectual property portfolio to include the use of our lead compound in chronic pain and anticipate results of a 200-person efficacy trial that could open a multibillion dollar opportunity in this therapeutic area. We have acquired sufficient data on safety and efficacy of ketamine to support a New Drug Application for IV ketamine in acute suicidality. We established the foundation of a specialty pharmaceutical business around ketamine that we expect to yield positive cash flow by the end of 2024. Finally, we received unanticipated data supporting the use of our lead compound to treat complicated Urinary Tract Infection and Pyelonephritis, a condition that affects 3 million Americans and results in more than 15,000 deaths annually. We believe that NRx is poised for substantial growth in 2024 and look forward sharing further results in our conference call."

Fourth Quarter Clinical, Regulatory and Corporate Highlights

Development of NRX-101 for Treatment-Resistant Suicidal Bipolar Depression

The Company has announced today that it expects data lock this week and release of top line data this month in its Phase 2b/3 trial of NRX-101 in Suicidal Bipolar Depression. In 2023, the Company published results of a phase 2 trial demonstrating that oral NRX-101 extends the effect of IV ketamine in reducing both suicidality and depression in patients presenting to the hospital. This trial is designed to determine whether oral NRX-101 can reduce depression and suicidality in outpatients, which would be a massive broadening of the potential market for the drug. This potential expansion was guided by the Company's January 2023 meeting with the FDA in which NRx was advised to seek approval for NRX-101 as a drug for bipolar depression as a chronic, intermittent disease, a far broader indication.

With the completion of data collection, an unprecedented data integrity standard (94% agreement between site raters and central raters) has been achieved across the completed cohort of patients.

In 2023, the Company completed manufacture and Chemical Manufacturing Controls for NRX-101. This initiative is expected to yield stability data sufficient to support a shelf life in excess of two years at time of potential drug launch (should the clinical trials be successful). The completion of this manufacturing milestone allowed the Company to decrease its ongoing expenditure associated with manufacturing and development of chemical manufacturing controls.

During Q4 and in early 2024, the Company has continued to solidify its working relationship with Alvogen and Lotus, and begun working in unison to plan the final development and commercialization of NRX-101. These partners recently advanced $5 million of the first milestone to the Company. As previously announced, a successful readout from this trial and FDA interaction will trigger an additional $4 million milestone payment together with transfer of future development costs to our partner. The partnership provides for potential milestones of $329 million and a royalty reaching 15% on Net Sales.

NRX-101 for Treatment of Chronic Pain:

The Company has previously detailed the scientific basis for treatment of chronic pain with DCS as outlined in a 2016 scientific paper published by Schnitzer, et. al. and in the White Paper posted by the Company's Scientific Leadership (Sappko, et. al.). In 2023, the Company licensed US Patent 8,653,120 for the use of DCS in chronic pain and filed a now-accepted Investigational New Drug (IND) application with the FDA to initiate commercial drug development of NRX-101 in chronic pain.

Chronic pain affects more than 50 million American adults, compared to the approximately 3 million who report thoughts of suicide on an annual basis. There has been no new non-opioid class of drugs to treat nociceptive pain in the past two decades and NRX-101 has the potential to be the first N-methyl-D-aspartate (NMDA)-antagonist drug to seek approval for this indication. Today, ketamine is used off label to treat nociceptive pain, despite its clear limitations (addiction, neurotoxicity, hallucination, and the need for IV administration.)

The Company is advised that data lock will occur this week in a 200-person randomized prospective trial funded by the US DOD (NCT 03535688) in which patients with chronic pain were randomly assigned to DCS 400mg/day vs. placebo. Top line results will follow. Should these results support efficacy of DCS in the treatment of chronic low back pain, they are expected to provide a Breakthrough Therapy path towards treatment of chronic pain with DCS and DCS-containing medicines.

Spin out of HOPE Therapeutics and progress towards an NDA for NRX-100 (ketamine) in the treatment of suicidal depression.

When NRx met with the FDA in January 2023, the agency strongly encouraged the Company to develop NRX-100 (IV Ketamine) as a labeled drug, rather than rely on prior stabilization of suicidality and depression achieved via the common clinical practice of infusing generic ketamine compounded in licensed pharmacies. Shortly thereafter, the FDA issued the first of two advisory letters warning physicians against using compounded forms of ketamine and began a program of rigorous inspections of such pharmacies. Although there was once an expectation that intranasal administration of ketamine would be effective in treating suicidality, the attempts to demonstrate the clinical efficacy of nasal racemic ketamine for acute suicidality have not succeeded.

Accordingly, in Q3 the Company finalized a scientific collaboration with Prof. Marion Leboyer of Paris, France and Prof. Mocrane Abbar of Lyon, France in order to incorporate the results of a 156-person inpatient trial of intravenous ketamine vs. placebo for the stabilization of patients admitted for acute suicidality (the KETIS trial). The findings of the trial demonstrate a statistically significant reduction in both suicidality (the primary endpoint) and depression (the secondary endpoint) among patients treated with intravenous ketamine compared to those treated with placebo. (Link)

In the fourth quarter, the company similarly licensed data from Columbia University. In this trial, Dr. Michael Grunebaum and colleagues demonstrated a rapid and statistically significant reduction in Suicidal Ideation (SSI) at day 1 (p=0.0003) and in depression (P=0.0234), as measured by the Profile of Mood States (POMS) among patients randomized to IV Ketamine compared to those randomized to midazolam. This trial was published in the American Journal of Psychiatry https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5880701/.

The patient-level deidentified data from both studies have now been received by the Company and are being assembled in the electronic format required by the FDA. The Company believes that these randomized, blinded prospective trials encompassing nearly 240 participants, when submitted for review at a patient level could be sufficient to demonstrate preliminary safety and efficacy of intravenous ketamine in acutely suicidal patients. Data are expected to be transmitted to FDA by the end of 2Q23.

Submission of an NDA for the use of IV Ketamine is dependent upon submission of a manufacturing file documenting the manufacture of a presentation of ketamine suitable for single-patient use in the treatment of suicidal depression. In November 2023, the Company initiated manufacture of ketamine together with Nephron Pharmaceuticals, Inc. (West Columbia, SC) to develop a single patient presentation of ketamine. This

formulation is expected to overcome some of the formulation deficiencies of existing forms of ketamine (developed for anesthesia) and is expected to have diversion-resistant and tamper-resistant features.

On March 30, 2024, the Company booked first commercial delivery of ketamine manufactured to 503b pharmacy standards from Nephron. HOPE will be distributing this presentation to qualified ketamine clinics in coordination with Nephron under Nephron's 503b pharmacy license in light of the current FDA-declared drug shortage of ketamine, starting this month (April 2024).

Treatment of Urinary Tract Infection (UTI) and Urosepsis:

Although treatment of UTI is quite different from use of NRX-101 to treat Central Nervous System disorders, D-cycloserine was originally developed as an antibiotic because of its role in disrupting the cell wall of certain pathogens. This is true of a number of drugs used in psychiatry today. D-cycloserine fell out of favor as an antibiotic in the 1970s because of the CNS effects caused by its NMDA-blocking properties and because of the widespread availability of effective first and second-generation antibiotics.

During Q3 2023, NRx tested NRX-101 and its components against resistant pathogens that appear on the Congressionally-mandated Qualified Infectious Disease Product (QIDP) list and proved in vitro effectiveness against antibiotic-resistant *E. coli, Pseudomonas, and Acinetobacter.* Accordingly, NRx was granted QIDP designation, Fast Track Designation, and Priority Review by the US FDA.

In recent years, increased antibiotic resistance to common pathogens that cause urinary tract infections and urosepsis (i.e., sepsis originating in the urinary tract) has resulted in a marked increase in cUTI, hospitalization, and death from urosepsis. The US Center for Disease Control and Prevention reports that more than 1.7 million Americans contract sepsis each year, of whom at least 350,000 die during their hospitalization or are discharged to hospice (CDC Sepsis Ref.). There are approximately 3 million patients per year who contract cUTI in the US annually (Lodise, et. al.). Additionally, should NRX-101 succeed in clinical trials, the Company will consider developing a follow-on product that is anticipated to achieve another 20 years of patent exclusivity.

Qualification for QIDP affords a sponsor five years of additional market exclusivity from FDA, regardless of patent status.

The Company does not anticipate funding this initiative with core NRx assets and is exploring structures for partnership opportunities. Should the Company or its partners succeed in serving 10% of the cUTI market, the Company believes that the revenue from NRX-101 has the potential to hundreds of million annually, based on 3 million cases per year (Lodise, et. al.) in the US and potential pricing of over $3,500/course of therapy.

Cash runway and financing

The Company continues to believe cash on hand is sufficient to fund operations through potential delivery of the upcoming milestones described herein.

Financial Results for the Quarter and Year Ended December 31, 2023

For the three months ended December 31, 2023, we at NRx Pharmaceuticals reduced our net loss from $10.2 million in the final quarter of 2022 to $4.3 million in 2023, representing nearly a 60% improvement year over year. For that same period, we reduced research and development expenses from $4.5 million in 2022 to $2.5 million in 2023, while substantially improving and finalizing our clinical trial enrollment. The $2.0 million decrease is related primarily to a decrease of $1.1 million in clinical trial expenses, $0.6 million in stock-based compensation, and $0.2 million in consulting and personnel wage costs. Also in that 3 month period we recorded a 67% reduction in general and administrative expenses, from $5.4 million in 2022 to $1.8 million in 2023. The decrease of $3.6 million is related primarily to a decrease of $1.3 million in insurance expenses, $1.3 million in stock-based compensation, $0.5 million in employee expenses, $0.2 million in legal and professional consulting fees, and $0.2 million in franchise tax expenses.

For the year ended December 31, 2023, NRx Pharmaceuticals reduced its net loss to $30.2 million compared to $39.8 million in the prior year. These efficiencies represent an improvement in net loss of nearly $10.0 million year over and a 20 cent, or 34%, improvement in net loss per share year over year. Over that annual period we recorded $13.4 million of research and development expenses compared to $17.0 million for the same period in 2022 representing a 21% decrease year over year. The decrease of $3.6 is related primarily to a decrease of $2.1 million in clinical trial and development expenses, $0.9 million related to fees paid to regulatory and process development consultants, $0.8 million in stock-based compensation while offset by a $0.2 million increase in patent costs as our patent portfolio has expanded.

Please note that the improvement in G&A expenses is even larger than the improvement in other areas. We decreased G&A by $13.1 million, from $27.3 million in 2022 to $14.2 million in 2023, nearly a 50% decrease year over year.

As of December 31, 2023, we had $4.6 million in cash and cash equivalents. Over the first three months of 2024 we improved our access to working capital by $8 million total, representing $2.9 million from equity sales and $5.1 million from the Alvogen milestone advance, while reducing our corporate indebtedness by 50% as shown in our financial statements.

We continue to implement operational efficiencies to extend runway and focus on our path to generating revenue. We believe that the near-term delivery of clinical trial data and the planned the launch of HOPE Therapeutics will be defining events in the second quarter of 2024.

Conference Call and Webcast Details

A live webcast of the conference call will be available on the Company's website at 8:30 a.m. ET today, at https://ir.nrxpharma.com/events. 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 1-877-704-4453 or internationally 1-201-389-0920.

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 is developing NRX-101, an FDA-designated investigational Breakthrough Therapy for suicidal treatment-resistant bipolar depression and chronic pain. NRx has partnered with Alvogen and Lotus around the development and marketing of NRX-101 for the treatment of suicidal bipolar depression. NRX-101 additionally has potential to act as a non-opioid treatment for chronic pain, as well as a treatment for complicated UTI.

NRx has recently announced plans to submit a New Drug Application for HTX-100 (IV ketamine), through Hope Therapeutics, in the treatment of suicidal depression, based on results of well-controlled clinical trials conducted under the auspices of the US National Institutes of Health and newly obtained data from French health authorities, licensed under a data sharing agreement. NRx was awarded Fast Track Designation for development of ketamine (NRX-100) by the US FDA as part of a protocol to treat patients with acute suicidality.

About HOPE Therapeutics, Inc.

HOPE Therapeutics, Inc. (www.hopetherapeutics.com) is a Specialty Pharmaceutical Company, wholly-owned by NRX Pharmaceuticals focused on development and marketing of an FDA-approved form of intravenous ketamine for the treatment of acute suicidality and depression together with a digital therapeutic-enabled platform designed to augment and preserve the clinical benefit of NMDA-targeted drug therapy.

Notice Regarding Forward-Looking Statements

The information contained herein includes forward-looking statements within the meaning of Section 21E of the

Securities Exchange Act of 1934, as amended, and Section 27A of the Securities Act of 1933, as amended. These statements include, among others, statements regarding the proposed public offering and the timing and the use of the proceeds from the offering. Forward-looking statements generally include statements that are predictive in nature and depend upon or refer to future events or conditions, and include words such as "may," "will," "should," "would," "expect," "plan," "believe," "intend," "look forward," and other similar expressions among others. These statements relate to future events or to the Company's future financial performance, and involve known and unknown risks, uncertainties and other factors that may cause the Company's actual results to be materially different from any future results, levels of activity, performance or achievements expressed or implied by these forward-looking statements. You should not place undue reliance on forward-looking statements since they involve known and unknown risks, uncertainties and other factors which are, in some cases, beyond the Company's control and which could, and likely will, materially affect actual results, levels of activity, performance or achievements. Any forward-looking statement reflects the Company's current views with respect to future events and is subject to these and other risks, uncertainties and assumptions relating to the Company's operations, results of operations, growth strategy and liquidity. More detailed information about the Company and the risk factors that may affect the realization of forward-looking statements is set forth in the Company's most recent Annual Report on Form 10-K and other filings with the Securities and Exchange Commission. Investors and security holders are urged to read these documents free of charge on the SEC's website at http://www.sec.gov. Except as may be required by applicable law, The Company assumes no obligation to publicly update or revise these forward-looking statements for any reason, or to update the reasons actual results could differ materially from those anticipated in these forward-looking statements, whether as a result of new information, future events or otherwise.

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