NRx Pharmaceuticals, Inc. (NASDAQ:NRXP) Announces Filing of a Citizen Petition with the US Food and Drug Administration Seeking Removal of Benzethonium Chloride from Ketamine Products

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- Sterile ketamine products currently for sale in the United States contain benzethonium chloride, a preservative with known toxicity that is not Generally Recognized as Safe and Effective by the US Food and Drug Administration
- FDA has previously prohibited the use of benzethonium chloride in hand cleansers and topical antiseptics
- Substantial precedent exists for removal of toxic preservatives from vaccines, eyedrops, and other pharmaceutical products
- The Company has filed data with FDA that documents the long-term stability and sterility of preservative-free ketamine for intravenous use

WILMINGTON, Del., Aug. 4, 2025 /PRNewswire/ -- NRx Pharmaceuticals, Inc. (Nasdaq:NRXP), a clinical-stage biopharmaceutical company, today announced the filing of a Citizen Petition with the US Food and Drug Administration (FDA), seeking the removal of Benzethonium Chloride from all forms of ketamine sold in the United States. Benzethonium Chloride (BZT) is a preservative with known toxicity that is not Generally Recognized as Safe (GRAS) by the FDA for parenteral products and not Generally Recognized as Safe and Effective (GRASE) for topical products. It belongs to a class of quaternary amine preservatives that is known to be toxic to epithelial cells and to demonstrate neurotoxicity. This class of preservatives has been removed from many eyedrops because of demonstrated toxicity to the conjunctiva and corneal nerves. The FDA no longer allows BZT to be used in hand cleansers and topical antiseptics.[1]

In June 2025 NRx filed an Abbreviated New Drug Application with the FDA for a preservative-free preparation of ketamine, demonstrating support for 3 year room temperature stability and sterility. NRx has similarly filed a patent on its preservative-free process, in light of prior art that suggested BZT was required for long term stability and sterility. The Company has instituted US-based high volume manufacture, while it awaits generic approval. The Company is additionally seeking a labeled indication for the use of ketamine to treat suicidal depression through the recently-announced FDA Commissioner's National Priority Voucher Program.

"At its introduction in the 1970s, ketamine was developed as an anesthetic and was never intended to be administered repeatedly to patients," said Dr. Jonathan Javitt, CEO of NRx Pharmaceuticals. "Ketamine is now widely used on a repeated basis as the only currently marketed drug that has shown benefit in treating suicidal depression and PTSD, although this is currently not a labeled indication. Hence, patients who receive intravenous ketamine on a repeated basis are exposed to a known toxic preservative that cannot be used today in hand cleaner, antiseptics, and other topical products. The European Medicines Agency

has warned against its use.[2] We believe that our Citizen Petition aligns with priorities articulated by current leadership of the US Department of Health and Human Services to remove potentially toxic additives and preservatives from the US Food and Drug supply and to re-shore the US Drug Supply."

About NRx Pharmaceuticals, Inc.

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. NRx plans to file an NDA for Accelerated Approval for NRX-101 in patients with bipolar depression and suicidality or akathisia.

NRx has recently filed an Abbreviated New Drug Application (ANDA) for preservative-free ketamine and initiated a New Drug Application filing for NRX-100 (IV ketamine) under the Commissioner's National Priority Voucher Program for the treatment of suicidal depression. The filing is 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.

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. 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, including uncertainties and assumptions relating to the Company's operations, results of operations, growth strategy, and, among other things, 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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[1] U.S. Food and Drug Administration. Final Rule: Safety and Effectiveness of Consumer Antiseptic Wash Products. 81 FR 61106. September 6, 2016. https://www.federalregister.gov/d/2016-21337

[2] European Medicines Agency (EMA). (2020). Questions and answers on benzalkonium chloride used as an excipient in medicinal products for human use [PDF]. EMA. https://www.ema.europa.eu/en/documents/scientific-guideline/questions-and-answers-benzalkonium-chloride-used-excipient-medicinal-products-human-use_en.pdf

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