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# PharmAla Files Patent for Novel MDXX Molecule PharmAla-1

*Patent Filing Follows Year of Preclinical Research, Academic Publication*

VANCOUVER, BC July 31, 2023 - PharmAla Biotech Holdings Inc. ("**PharmAla**" or the "**Company**") (CSE: MDMA) (OTC:PMBHF), a biotechnology company focused on the research, development, and manufacturing of novel MDXX class molecules (including MDMA), is thrilled that it has filed a patent on the composition of matter of PharmAla-1. The patent filing follows a year of preclinical proof-of-concept research at the University of Arkansas for Medical Sciences in the laboratory of Prof. William Fantegrossi. PharmAla's novel drug development pipeline has been advancing rapidly in 2023, with PharmAla's ALA family moving rapidly into clinical development. The Composition of Matter patent on the Novel Chemical Entity (NCE) PharmAla-1 will further strengthen the company's position as a leading developer of Central Nervous System (CNS) pharmaceutical treatments.

"Our review of PharmAla-1's therapeutic potential indicates that it brings together a number of highly desirable drug characteristics," said Nick Kadysh, CEO of PharmAla Biotech. "We believe the drug is potent, meaning individuals will need to take less of it. Based on computational chemistry, we believe that the molecule exhibits stronger serotonin binding than MDMA – meaning it will be closer in effect to the classical psychedelics while retaining the trademark and highly desirable pro-social effects of other MDXX compounds."

PharmAla-1 was first discovered through computational *in-silico* modelling exercises via PharmAla Biotech's partnership with the University of Windsor, for which PharmAla has also received a grant from the Ontario Centres for Innovation. PharmAla-1 is the first molecule of PharmAla's extensive computational drug development pipeline, which PharmAla is announcing to the market in detail; PharmAla's ALA and ABA patent families were developed via traditional drug discovery.

"PharmAla-1 brings together our drug discovery ethos in an exciting way: a focus on regulatory excellence and cutting-edge science," said Dr Harpreet Kaur, VP of Research for PharmAla Biotech. "It exhibits favourable safety pharmacology profiles compared to traditional MDXX compounds. It is a non-controlled drug, allowing for faster regulatory development. Modelling indicates it is likely to be neuroplasticity-inducing, and its receptor binding profile indicates that it is potentially the bridge between MDXX molecules of the substituted phenethylamine class and the classical 5-HT2 agonists of the classical Psychedelics. This leads our team to believe that the molecule represents a useful potential addition to the Psychiatric pharmacopoeia and a valuable addition to PharmAla's IP portfolio."

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PharmAla's research team is excited to bring its extensive animal model research regarding PharmAla-1 and PharmAla's ALA and ABA families to several major pharmaceutical conferences in the Fall of 2023.

## Publication in *Psychedelic Medicine*

PharmAla is also excited to announce the acceptance of its review article titled "Balancing therapeutic efficacy and safety of MDMA and novel MDXX analogues as novel treatments for autism spectrum disorder" for publication in *Psychedelic Medicine*.

Autism Spectrum Disorder (ASD) affects millions worldwide, presenting challenges in social interactions and impairing daily functioning. Currently, no approved pharmacological treatments specifically target the global symptoms of ASD. In response to this urgent need, PharmAla Biotech's review article addresses the potential of MDMA-like drugs to elicit pro-social effects, potentially alleviating social anxiety and avoidance commonly observed in individuals with ASD.

*Balancing therapeutic efficacy and safety of MDMA and novel MDXX analogues as treatments for autism spectrum disorder* delves into the complex pharmacology of MDMA-like entactogens, exploring their drug-binding sites, metabolic enzymes, and chemical structure-activity relationships.

"The therapeutic potential of MDMA and MDXX analogues was recognised very early on but was masked by abuse-related and toxic effects," said Dr. William Fantegrossi, Professor of Pharmacology at the University of Arkansas for Medical Sciences. "A better understanding of the complex pharmacology of these substances has allowed significant advancements in drug design and formulations to mitigate the adverse effects of these substances while preserving their clinically useful effects. In this review, we describe some of this work in the context of treatment of ASD and hopefully lay the groundwork for further research in this area."

"We believe that exploring the therapeutic potential of MDMA-like compounds can offer new hope for individuals with autism spectrum disorder and their families," added Nicholas Kadysh, CEO of PharmAla Biotech. "Our commitment to scientific excellence and innovative research drives us to push the boundaries of psychedelic medicine to improve the lives of those affected by mental health ailments. The next step is proving our ability to do this by moving these molecules into the clinic, which we intend to do (in partnership with the University of Sydney) with our lead molecule, ALA-002."

For more information, please visit www.PharmAla.ca, where you can sign up to receive regular new updates.

**About PharmAla**

PharmAla Biotech Holdings Inc. (CSE: MDMA) is a biotechnology company focused on the research, development, and manufacturing of MDXX class molecules, including MDMA. PharmAla was founded with a dual focus: alleviating the global backlog of generic, clinical-grade MDMA to enable clinical trials, and to develop novel drugs in the same class. PharmAla is the first publicly-traded company to manufacture clinical-grade MDMA. PharmAla's research and development unit has completed proof-of-concept research into several IP families, including ALA-002, its lead drug candidate. PharmAla's lead drug candidate. PharmAla is a "regulatory first" organization, formed under the principle that true success in the psychedelics industry will only be achieved through excellent relationships with regulators.

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