PharmaTher Announces FDA Approval of Ketamine IND In The Treatment of Parkinson's Disease

TORONTO, May 17, 2021 (GLOBE NEWSWIRE) -- PharmaTher Holdings Ltd. (the "Company" or "PharmaTher") (CSE: PHRM) (OTCQB: PHRRF), a psychedelics biotech company, is pleased to announce that the U.S. Food and Drug Administration ("FDA") has approved the Company's Investigational New Drug ("IND") application to proceed with a Phase 2 clinical trial to evaluate the safety, efficacy and pharmacokinetics of ketamine in the treatment of levodopa-induced dyskinesia in patients with Parkinson's disease ("LID-PD"). PharmaTher expects to begin enrolling patients in the Phase 2 clinical trial in Q3-2021. Assuming the Phase 2 clinical trial is positive, the Company will request a meeting with the FDA to discuss its plan and obtain an agreement to move to a Phase 3 clinical study under the 505(b)(2) regulatory pathway next year.

Fabio Chianelli, Chief Executive Officer of PharmaTher, said, "The FDA's acceptance of our IND application for ketamine to treat Parkinson's disease is a significant milestone for us. The FDA IND is our first of many we will aim to obtain, and we are one of the few psychedelics-focused biotech companies that have an IND approved by the FDA for a recognized psychedelic drug. The IND paves the way for us to expeditiously evaluate ketamine and other psychedelics via the FDA regulatory pathway in various mental illness, neurological and pain disorders. We are committed to building a rich product pipeline of novel uses, formulations and delivery methods of psychedelics, and with our FDA IND in place, we now have the foundation in making PharmaTher a global leader in psychedelic-based therapeutics."

Parkinson's disease is a debilitating disorder that affects over 1 million people in the U.S. and more than 7 million people worldwide. There is currently no cure for Parkinson's disease, although some drug combinations are used to treat the disease symptoms. The global Parkinson's disease market is expected to grow from USD $5 billion in 2019 to USD $7.5 billion by the end of 2025 [360iResearch 2020] and it is estimated that the potential market opportunity for LID-PD to be over USD $3 billion in the U.S. alone.

About the Phase 2 Clinical Trial

The clinical trial is titled "A Multi-Center, Phase II, Randomized, Double-Blind, Prospective, Active Placebo-Controlled Trial of Sub-Anesthetic Ketamine to Treat Levodopa-Induced Dyskinesia in Subjects with Parkinson's Disease." It is anticipated that up to eight clinical sites in the U.S. will randomize a total of up to 36 subjects to the investigational product (ketamine) or active control (midazolam). The primary end-point of the study is the change in the Unified Dyskinesia Rating Scale ("UDysRS") total score from Baseline to Week 8. Secondary endpoints of the study include the change in Total Objective Scores of the UDysRS, total daily OFF times as assessed by subject-completed 24-hour diaries and change in the UPDRS total and sum scores of motor and dyskinesia from Baseline to Week 8. Because LID can markedly affect a Parkinson patient's everyday activities, a reduction in LID could improve the patient's quality of life.

The Company has assembled a prolific scientific and clinical team experienced in Parkinson's disease, including Dr. Scott Sherman and Dr. Torsten Falk from the University of Arizona, Dr. Alberto Espay from the University of Cincinnati and Dr. Robert Hauser from the University of South Florida.

Ketamine's Potential In Parkinson's Disease

Ketamine is an FDA-approved N-methyl-D-aspartate ("NMDA") receptor-modulating drug that is widely used as an anesthetic agent either alone or in combination with other anesthetic agents [Smith et al, 1987; Pacheco et al, 2014]. The possible therapeutic effect of low-dose ketamine on LID was noted in a retrospective analysis of PD patients who received ketamine for pain relief. During this analysis, it was observed that the patients experienced an improvement in LID lasting several weeks beyond treatment [Sherman et al, 2016]. These results were corroborated in a test of low-dose ketamine in a rodent LID model, and this possible effect has also been examined in a controlled study [Bartlett et al, 2016]. Ketamine may also have additional benefits in the treatment of pain [Niesters et al, 2014] and depression [Diamond et al, 2014; Murrough et al, 2013], which are frequent comorbidities of Parkinson's disease.

About Parkinson's Disease

There is currently no cure for Parkinson's disease. Although the etiology of Parkinson's disease is not fully understood, it is thought to result from loss of pigmented dopaminergic neurons in the Substantia nigra and their striatal projections, leading to dopamine deficiency in the striatum [Schapira and Jenner, 2011]. This ultimately affects the cortico-striatal system that controls movement. As a progressive neurogenerative disorder of the central nervous system that primarily affects the motor nerve system, symptoms of Parkinson's disease may emerge slowly and include tremors, rigidity, bradykinesia, and postural instability [Paulson and Stern, 2004]. Also, patients may experience non-motor symptoms such as autonomic dysfunction (orthostatic hypotension, constipation, bladder dysfunction), psychiatric (depression), cognitive and sensory symptoms (pain) [Olanow, et al, 2009]. These non-motor symptoms become more common as the disease progresses. Treatments, including levodopa and dopamine agonists, which restore the dopamine deficits in the brain, have been employed for almost 50 years. However, with continued treatment using levodopa, dose-limiting motor side-effects often emerge. This includes the emergence of abnormal involuntary movements termed Levodopa Induced Dyskinesias, which can be identified in about 50% of patients within five years after initiation of levodopa treatment and in almost all patients within ten years post-treatment initiation. These

side effects often limit further dose increases in dopaminergic therapy.

There can be no assurance that the FDA will support any potential request for an expedited path to approval or further development for ketamine in the treatment of Parkinson's disease.

About PharmaTher Holdings Ltd.

PharmaTher Holdings Ltd. (CSE: PHRM) (OTCQB: PHRRF) is a psychedelics biotech company focused on the research, development and commercialization of ketamine and novel microneedle patches for the delivery of psychedelics to treat mental illness, neurological and pain disorders.

Learn more at: **PharmaTher.com** and follow us on **Twitter** and **LinkedIn**.

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