



PharmaTher Announces Positive Research Results for PharmaPatch™ with N,N-dimethyltryptamine (DMT) and Strategic Investment into Sairiyo Therapeutics

TORONTO, July 18, 2023 – PharmaTher Holdings Ltd. (the “Company” or “PharmaTher”) (OTCQB: PHRRF) (CSE: PHRM), a commercial-focused specialty pharmaceutical company, is pleased to announce that it has successfully completed a research study evaluating PharmaPatch™, a proprietary microneedle patch, in delivering N,N-dimethyltryptamine (“DMT”). The research study was conducted with Terasaki Institute for Biomedical Innovation (“Terasaki”).

The research study aimed to develop a suitable prototype of PharmaPatch™ for transdermal delivery of DMT, which could potentially overcome obstacles associated with oral and intravenous dosing. The scope of the study included full characterization of DMT conjugated on the microneedle patch backbone, establishment and demonstration of the loading capacity for DMT, and release rate evaluations for the DMT conjugated materials using appropriate models. DMT conjugated microneedles have been successfully fabricated, optimized, and characterized. Both structural aspects and ex-vivo skin insertion assessments of the drug conjugated microneedles have demonstrated successful fabrication and acceptable performance. The incorporation of DMT into microneedles without issue and the ability to demonstrate complete ex vivo skin model release over several days demonstrates the potential for larger doses, modified release profiles, and microdosing.

As published by [Cameron et al.](#), unverified reports have suggested that serotonergic psychedelics administered in low doses on a chronic, intermittent schedule (i.e. microdosing), might produce beneficial effects on mood, anxiety, cognition, and social interaction. The study subjected male and female Sprague Dawley rats to behavioral testing following the chronic, intermittent administration of low doses of DMT. Results suggest that DMT microdosing may alleviate symptoms of mood and anxiety disorders.

As such, a DMT PharmaPatch™ may enable an effective microdosing delivery solution and potential flexible drug load capacity and combinations, controlled released delivery, and be able to present desired pharmacokinetic and safety profiles, which could potentially overcome obstacles associated with oral and intravenous dosing.



PharmaPatch™ is a proprietary microneedle-enhanced delivery system offering an efficient and painless method for delivering drugs, including psychedelics and medicines, to treat infectious diseases. The microneedle patch delivery technology is based on novel biocompatible and biodegradable gelatin methacryloyl (“GelMA”) material to deliver water-soluble and insoluble drugs with desirable release profiles safely. The GelMA-based microneedle patch can efficiently penetrate the stratum corneum layer (outer layer of the skin), enable flexible drug load capacity and combinations, microdosing, and controlled released delivery. Microneedles are considered a promising way to achieve systemic effects by transdermal delivery of drugs, including psychedelics, and circumventing absorption and first-pass barriers typical for oral delivery. In addition, it aims to empower patients to self-dose safely and incorporates anti-tampering and anti-abuse features. The Company has completed research studies demonstrating that PharmaPatch™ can deliver psychedelics, such as DMT, psilocybin, MDMA, and LSD.

The Company believes it has an acceptable prototype for completing IND-enabling studies with the aim of pursuing human clinical studies. In February 2023, the Company entered into a research collaboration with PharmaDrug Inc. (“PharmaDrug”) to evaluate a product and clinical development plan to initiate regulatory discussions for future clinical studies in various indications for a DMT PharmaPatch™. The Company will invest three hundred thousand dollars (CAD 300,000) in Sairiyo Therapeutics Inc. (“Sairiyo”), a subsidiary of PharmaDrug Inc., for forty-nine (49%) ownership. In addition to developing cepharanthine for cancer and infectious diseases, Sairiyo is developing novel uses and delivery forms of DMT and other undisclosed psychedelic tryptamines as a potential treatment for ocular disease and neuropsychiatric conditions. The investment allocated to Sairiyo will be used to advance developments of cepharanthine and DMT PharmaPatch™.

In connection with the investment, PharmaDrug and PharmaTher (the “Shareholders”) will enter into a unanimous shareholders agreement with respect to their holdings of Sairiyo. The shareholders agreement provides, among other things, that (i) so long as PharmaDrug owns a majority of the shares of Sairiyo it shall have the ability to appoint the officers of Sairiyo; (ii) the board of directors shall be comprised of three members a majority of whom are to be nominated by PharmaDrug for so long as it holds at least 50% of the outstanding shares of Sairiyo, with the initial board being comprised of Daniel Cohen and Paul McClory (as nominees of PharmaDrug) and Fabio Chianelli (as the nominee of PharmaTher); and (iii) the Shareholders shall be entitled to subscribe for new share issuances on a pro rata basis. In the event that PharmaDrug elects not to participate in any new issuance, PharmaTher may increase its ownership from 49% to 51%



with an investment of \$250,000. Either side may increase its ownership by 10% for additional \$100,000 investments. Neither side may be diluted beyond a 10% carried interest.

About PharmaTher Holdings Ltd.

PharmaTher Holdings Ltd. (OTCQB: PHRRF) (CSE: PHRM) develops and commercializes specialty pharmaceuticals exhibiting growing adoption and permitting novel delivery methods to enhance patient outcomes. The Company's lead product is KETARX™ (racemic ketamine) to fill the global unmet medical needs for anesthesia, sedation, pain, mental health, and neurological indications. The Company is commercializing PharmaPatch™ (microneedle patch) with its partners to deliver psychedelics and drugs to treat infectious diseases. Learn more at PharmaTher.com.

For more information about PharmaTher, please contact:

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Cautionary Statement

This press release contains 'forward-looking information' within the meaning of applicable Canadian securities legislation. These statements relate to future events or future performance. The use of any of the words "could", "would", "intend", "expect", "believe", "will", "projected", "estimated", "potential", "aim", "may", "plan", "proposed", "lead", "toward", "anticipate", and similar expressions and statements relating to matters that are not historical facts are intended to identify forward-looking information and are based on PharmaTher Holdings Ltd. (the "Company") current belief or assumptions as to the outcome and timing of such future events. In particular, this press release contains forward-looking information in relation to: the use of proceeds of the strategic investment by the Company in Sairiyo and the Company's business plans. Forward-looking information is based on reasonable assumptions that have been made by the Company at the date of the information and is subject to known and unknown risks,



uncertainties, and other factors that may cause actual results or events to differ materially from those anticipated in the forward-looking information. Given these risks, uncertainties and assumptions, you should not unduly rely on these forward-looking statements. The forward-looking information contained in this press release is made as of the date hereof, and Company is not obligated to update or revise any forward-looking information, whether as a result of new information, future events or otherwise, except as required by applicable securities laws. The foregoing statements expressly qualify any forward-looking information contained herein. Factors that could cause actual results to differ materially from those anticipated in these forward-looking statements are described under the caption "Risk Factors" in Company's management's discussion and analysis for the three and nine months ended February 28, 2023 ("MD&A"), dated April 28, 2023, which is available on the Company's profile at www.sedar.com.

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