Shuttle Pharma's Selective HDAC Inhibitor Exhibits ATM Activation and Modulation of ER Expression Resulting in Substantial Growth Inhibition of Estrogen Receptor Positive Breast Cancer Cells, as Reported in PLOS ONE

GAITHERSBURG, Md., July 19, 2024 — Shuttle Pharmaceuticals Holdings, Inc. (Nasdaq: SHPH), ("Shuttle Pharma"), a discovery and development stage specialty pharmaceutical company focused on improving outcomes for cancer patients treated with radiation therapy (RT), today announced the publication of a manuscript reporting on the ability of one of the Company's HDAC inhibitor pre-clinical assets, SP-1-303, which exhibits ataxia-telangiectasia mutated protein (ATM) activation and modulation of estrogen receptor expression resulting in substantial growth inhibition of estrogen receptor positive breast cancer cells (ER + BC).

The published manuscript, titled "Dual-targeting class I HDAC inhibitor and ATM activator, SP-1-303, preferentially inhibits estrogen receptor positive breast cancer cell growth," reports the work of Dr. Mira Jung, Professor of Radiation Medicine at Georgetown University Medical Center, and Dr. Scott Grindrod, Shuttle Pharma's Principal Scientist, and was published in PLOS ONE, a peer-reviewed open access journal published by the Public Library of Science (PLOS).

SP-1-303, initially discovered and synthesized in Shuttle Pharma's laboratories by Dr. Grindrod, is one of the Company's pre-clinical selective Class I HDAC inhibitors. Histone deacetylase inhibitors sensitize cancers to the effects of radiation, protect normal tissues from radiation injury and activate the immune system. SP-1-303 is a selective Class I HDAC inhibitor that inhibits HDAC1, 3 and 6 and has direct cellular toxicity in ER + BC. Furthermore, SP-1-303 increases the PD-L1 expression level in a time-dependent manner, supporting combination of SP-1-303 with an immune checkpoint blocker to enhance the therapeutic benefits.

"Inhibition of cancer cell growth with little effect on surrounding normal cells is the desired strategy for treatment of cancers," commented Anatoly Dritschilo, M.D., CEO of Shuttle Pharmaceuticals and a co-author of the report. "The report highlights to the scientific and financial community how combined targeting of Class I HDACs and ATM by SP-1-303 offers a promising therapeutic approach for treating estrogen receptor positive breast cancers and supports further preclinical evaluation as a potential therapeutic agent."

A copy of the publication is available at:
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0306168#sec018

About Shuttle Pharmaceuticals

Founded in 2012 by faculty members of the Georgetown University Medical Center, Shuttle Pharma is a discovery and development stage specialty pharmaceutical company focused on

improving the outcomes for cancer patients treated with radiation therapy (RT). Our mission is to improve the lives of cancer patients by developing therapies that are designed to maximize the effectiveness of RT while limiting the side effects of radiation in cancer treatment. Although RT is a proven modality for treating cancers, by developing radiation sensitizers, we aim to increase cancer cure rates, prolong patient survival and improve quality of life when used as a primary treatment or in combination with surgery, chemotherapy and immunotherapy. For more information, please visit our website at www.shuttlepharma.com.

Safe Harbor Statement

Statements in this press release about future expectations, plans and prospects, as well as any other statements regarding matters that are not historical facts, may constitute "forward-looking statements." These statements include, but are not limited to, statements concerning the development of our company. The words "anticipate," "believe," "continue," "could," "estimate," "expect," "intend," "may," "plan," "potential," "predict," "project," "should," "target," "will," "would" and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. Actual results may differ materially from those indicated by such forward-looking statements as a result of various important factors, including factors discussed in the "Risk Factors" section of Shuttle Pharma's Annual Report on Form 10-K for the year ended December 31, 2023, filed with the SEC on March 20, 2024, as well other SEC filings. Any forward-looking statements contained in this press release speak only as of the date hereof and, except as required by federal securities laws, Shuttle Pharmaceuticals specifically disclaims any obligation to update any forward-looking statement, whether as a result of new information, future events or otherwise.

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