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Peregrine Pharmaceuticals Enters Into Research Collaboration to Investigate Novel PS-Targeting Immunotherapy Combinations

Research Collaboration to Focus on Exploring Potential Combinations of PS-Targeting Agents Including Baviximab With Other Immune Modulators

TUSTIN, Calif., May 29, 2015 (GLOBE NEWSWIRE) -- Peregrine Pharmaceuticals, Inc. (Nasdaq:PPHM) (Nasdaq:PPHMP), a biopharmaceutical company focused on advancing baviximab, a novel immuno-oncology agent in Phase III development for the treatment of lung cancer, today announced that the company has entered into a sponsored research agreement with Memorial Sloan Kettering Cancer Center (MSK) to explore the potential of Peregrine's proprietary phosphatidylserine (PS)-targeting antibody platform. The goal of the research is to identify effective treatment combinations based on Peregrine's PS-targeting agents, including Peregrine's lead clinical agent baviximab, with other checkpoint inhibitors or immune stimulating agents that will further guide the baviximab clinical development program.

The studies at MSK will be performed under the direction of Taha Merghoub, Ph.D., Associate Attending Biologist, Melanoma and Immunotherapeutics Service, Ludwig Collaborative and the Swim Across America Laboratory, a part of the laboratory of Jedd D. Wolchok, M.D., Ph.D., a leader in the field of cancer immunotherapy. Dr. Wolchok serves as the Chief, Melanoma and Immunotherapeutics Service, Lloyd J. Old Chair for Clinical Investigation as well as an Associate Director of the Ludwig Center for Cancer Immunotherapy at MSK.

"The phosphatidylserine (PS) signaling pathway is a very interesting target for modulating the immune system's response to cancer. We look forward to exploring the potential of PS-targeting agents alone and with other immune modulators that may lead to novel advances in cancer therapy," said Dr. Wolchok.

As part of the collaboration, researchers at MSK will conduct research to further explore the combination of PS-targeting agents, including baviximab, that block a primary immunosuppressive pathway thereby allowing anti-tumor immune responses with other immuno-stimulatory agents that enhance immune responses. Specifically, MSK researchers will examine the combination of baviximab alongside models of checkpoint blockade that are unresponsive to inhibition or co-stimulation given the ability of baviximab to reprogram myeloid derived suppressor cells (MDSC) and increase tumoricidal T-cells in tumors, a mechanism of action that is complementary to checkpoint blockade and T-cell activation.

"A key focus of the Wolchok Lab's research is studying novel immunotherapy combinations that work together to enable the immune system to recognize and destroy cancer. This collaboration will allow us to focus on the role and contribution of PS blockade therapy in determining which combination of the current and next generation of immune modulators is likely to increase the extent and amplitude of anti-tumor response. This important pre-clinical and translational work will potentially guide the design of the next generation of clinical studies with baviximab," said Dr. Merghoub.

"We are delighted to be working with a world-renowned pioneer and leader in the immuno-oncology space, recognizing that there remains significant research in order for more cancer patients to realize the benefits of combination immune therapy," said Jeff T. Hutchins, Ph.D., VP of Preclinical Research at Peregrine. "Our internal and collaborative research presented over the last year has established a robust foundation of PS-targeting activity on which to initiate this next chapter in PS research and development."

"This collaboration is an important extension of our established research efforts to further explore and understand the potential of our PS-targeting platform including baviximab our lead clinical candidate. This research will focus on better understanding how treatment with PS-targeting agents can assist other anti-tumor immunotherapies in order to work better," said Steven King, chief executive officer of Peregrine. "Our goal is to change the way cancer patients are treated by allowing their immune system to recognize and fight their disease. This collaboration will undoubtedly assist us in identifying potential new opportunities to better treat patients with cancer."

Peregrine's antibodies target and bind to phosphatidylserine (PS), a highly immunosuppressive molecule normally located on the interior of cellular membranes, but, following stresses in the tumor environment, becomes exposed on tumor cells and cells that line tumor blood vessels, helping tumors to evade immune detection. PS-targeting antibodies block this immunosuppressive signal, thereby enabling the immune system to better recognize and fight the tumor. Preclinical data show that the combination of baviximab and inhibitors of immune checkpoints reduce tumor-suppressive factors including myeloid-

derived suppressor cells and confer increased tumor-specific immunity when compared to either treatment alone.

About Peregrine Pharmaceuticals, Inc.

Peregrine Pharmaceuticals, Inc. is a biopharmaceutical company with a pipeline of novel drug candidates in clinical trials for the treatment and diagnosis of cancer. The company's lead immunotherapy candidate, bavituximab, is in Phase III development for the treatment of second-line non-small lung cancer (the "SUNRISE trial") along with several investigator-sponsored trials evaluating other treatment combinations and additional oncology indications. The company is also advancing a molecular imaging agent, 124I-PGN650, in an exploratory clinical trial for the imaging of multiple solid tumor types. Peregrine also has in-house cGMP manufacturing capabilities through its wholly-owned subsidiary Avid Bioservices, Inc. (www.avidbio.com), which provides development and biomanufacturing services for both Peregrine and third-party customers. For more information, please visit www.peregrineinc.com.

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