September 9, 2013

Data Supporting Bavituximab's Immunotherapy Mechanism of Action Published in the Peer-Reviewed AACR Journal Cancer Immunology Research

Published Data Shows PS-Targeting Antibodies Such as Bavituximab Activate Tumor-Specific Immune Responses by Blocking PS-Mediated Immunosuppression; PS-Targeting Antibody Therapy Results in Adaptive Immune Responses Including Development of Tumor Specific Cytotoxic T-Cells; Peregrine to Initiate Bavituximab Phase III Clinical Trial in Second-Line NSCLC by Year-End

TUSTIN, CA -- (Marketwired) -- 09/09/13 -- Peregrine Pharmaceuticals (NASDAQ: PPHM) today announced the publication of preclinical research highlighting the immune-stimulatory mechanism of action of phosphatidylserine (PS)-targeting antibodies, such as the company's lead drug candidate bavituximab. The manuscript details the results from a series of studies demonstrating that exposed PS plays a major role in the inhibition of pro-inflammatory cellular and cytokine responses in tumors and that PS-targeting antibodies override this primary upstream immune checkpoint, activating multiple downstream immunostimulatory effects, including the conversion of myeloid derived suppressor cells into tumor immunity promoting M1 macrophages and the generation of tumor killing cytotoxic T-cells.

"The mechanism of action data in this publication has transformed our understanding of bavituximab and supports many new areas of development for bavituximab. Since the initial data demonstrating bavituximab's immunotherapy mechanism were presented earlier this year, we have undertaken preclinical studies to actively explore new combinations and approaches for potential bavituximab therapies," said Jeff T. Hutchins, Ph.D. vice president, preclinical research of Peregrine Pharmaceuticals. "As immunotherapy combinations have shown great promise recently in treating cancer and as PS is known to be a primary upstream inhibitory checkpoint for tumor immune recognition, we believe there are many immunotherapy combination options for bavituximab. As such, our ongoing preclinical studies are designed to read out in the coming months to guide our clinical trial development strategy for these combinations."

These results appear in the American Association for Cancer Research (AACR) peer-reviewed journal, *Cancer Immunology Research*, in a manuscript titled: "Phosphatidylserine-targeting antibody induces M1 macrophage polarization and promotes myeloid derived suppressor cell differentiation."

In the online released manuscript, researchers examined whether 2aG4, the mouse equivalent antibody to bavituximab, could reverse the known immunosuppressive effects of exposed PS in the tumor environment. Results showed that 2aG4 reactivated antitumor immunity on multiple levels including the switching of tumor associated macrophages to a tumoricidal M1-like phenotype, the reduction of myeloid-derived suppressor cells (MDSC) in tumors, an increase in immunostimulatory signaling chemicals (cytokines) and the maturation of dendritic cells into functional antigen-presenting cells (APC) leading to tumor-specific cytotoxic T-cell responses. These multiple anti-tumor effects were further shown to occur without the side-effects associated with systemic immune activation.

"Data like those just published are critical to guiding our clinical strategy for bavituximab. First, they further support the synergistic potential of bavituximab with docetaxel, which will be evaluated by Peregrine in a global pivotal Phase III trial for non-small-cell lung cancer to be initiated by year-end. Second, these new mechanistic insights open up many opportunities for collecting data from ongoing trials to further confirm in the clinic these findings from preclinical studies. We plan to test samples from ongoing studies and the results could be very important in guiding the clinical development program," said Anshu Vashishtha, M.D., Ph.D., senior medical director of Peregrine Pharmaceuticals. "Third, these new data also serve as the foundation for our ongoing preclinical development program focused on the possibility of new immunotherapy combinations in upcoming clinical trials. We continue to work closely with the preclinical researchers to evaluate the optimal immunotherapy combinations, and believe that we can advance one or more of these combinations into clinical trials in the near future."

A copy of the article is available at: http://cancerimmunolres.aacrjournals.org/content/early/2013/08/30/2326-6066.CIR-13-0073.full.pdf+html

About Peregrine Pharmaceuticals, Inc.

Peregrine Pharmaceuticals, Inc. is a biopharmaceutical company with a portfolio of innovative monoclonal antibodies in clinical trials focused on the treatment and diagnosis of cancer. The company is pursuing multiple clinical programs in cancer with its lead immunotherapy candidate bavituximab and novel brain cancer agent Cotara®. 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. Additional information about Peregrine can be found at www.peregrineinc.com.

Safe Harbor Statement: Statements in this press release which are not purely historical, including statements regarding Peregrine Pharmaceuticals' intentions, hopes, beliefs, expectations, representations, projections, plans or predictions of the future are forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. The forward-looking statements involve risks and uncertainties including, but not limited to, the risk that the results from ongoing proof-of-concept studies may not be consistent with the results published in the manuscript, the risk that combining bavituximab with other antibodies that enhance tumor immunity, such as an anti-PD1, anti-PD-L1, or anti-CTLA-4, may not result in any additional benefit, and the risk that company may not be able to initiate the Phase III trial within its anticipated timeline. It is important to note that the company's actual results could differ materially from those in any such forward-looking statements. Factors that could cause actual results to differ materially include, but are not limited to, uncertainties associated with completing preclinical and clinical trials for our technologies; the early stage of product development; the significant costs to develop our products as all of our products are currently in development, preclinical studies or clinical trials; obtaining additional financing to support our operations and the development of our products; obtaining regulatory approval for our technologies; anticipated timing of regulatory filings and the potential success in gaining regulatory approval and complying with governmental regulations applicable to our business. Our business could be affected by a number of other factors, including the risk factors listed from time to time in our reports filed with the Securities and Exchange Commission including, but not limited to, our annual report on Form 10-K for the fiscal year ended April 30, 2013. The company cautions investors not to place undue reliance on the forward-looking statements contained in this press release. Peregrine Pharmaceuticals, Inc. disclaims any obligation, and does not undertake to update or revise any forward-looking statements in this press release.

Contact:

Christopher Keenan
Jay Carlson
Peregrine Pharmaceuticals
(800) 987-8256
info@peregrineinc.com

Source: Peregrine Pharmaceuticals