February 9, 2015

Newly Presented Data Shows That Peregrine Pharmaceuticals' PS-Targeting Antibodies Significantly Enhance Anti-Tumor Activity of Immune Checkpoint Inhibitors PD-1 and CTLA-4 in Models of Breast Cancer and Melanoma

PS-Targeting Antibodies Block Tumor Suppression of Immune System Allowing Development of Robust Immune Responses Resulting in Statistically Significant Improvement in Anti-Tumor Activity; Specific Effects Seen in Decreased Levels of MDSCs and Other Immunosuppressive Lymphocytes and Increases in Tumor Fighting Immune Cells

TUSTIN, CA -- (Marketwired) -- 02/09/15 -- Peregrine Pharmaceuticals, Inc. (NASDAQ: PPHM) (NASDAQ: PPHMP) today announced preclinical data presentations showing that the PS-targeting antibody equivalent to bavituximab combined with an anti-PD-1 antibody displayed statistically significant improvement in tumor fighting immune cells, activation signals and cytokines in a model of melanoma compared to anti-PD-1 alone. Moreover, cells that suppress the immune system from recognizing tumors, such as myeloid-derived suppressor cells (MDSCs), were reduced by more than 40% in the combination with the PS-targeting antibody versus anti-PD-1 alone. These data, further validating the immune-stimulatory mechanism of bavituximab, are outlined in an oral and poster presentation by Bruce Freimark, Ph.D., director, preclinical oncology research at Peregrine, to be made at the Keystone Tumor Immunology: Multidisciplinary Science Driving Combination Therapy meeting being held February 8-13, 2015 in Banff, Alberta, Canada. Peregrine's lead PS-targeting antibody, bavituximab, is currently being evaluated in second-line non-small cell lung cancer (NSCLC) as part of the SUNRISE pivotal Phase III clinical trial.

"These data build on our growing body of encouraging combination data and strengthen our clinical development plans as we evaluate the direction of combination therapy trials utilizing bavituximab and other checkpoint inhibitors" said Jeff T. Hutchins, Ph.D., vice president of preclinical research at Peregrine. "Our goals are to modify a tumor environment that allows more patients to respond to conventional and immune therapy. As the tumor environment switches from immuno-suppressive to immuno-stimulatory with bavituximab treatment, we believe the addition of other checkpoint inhibitors, like anti-PD-1, may increase the number of patients responding to therapy."

In the presentations titled: "Antibody-Mediated Blockade of Phosphatidylserine Enhances the Anti-Tumor Activity of Immune Checkpoint Inhibitors by Affecting Myeloid-Derived Suppressor Cells (MDSC) and Lymphocyte Populations in the Tumor Microenvironment", Dr. Freimark and his research group, along with colleagues from the University of Texas Southwestern Medical Center led by Xianming Huang, Ph.D., demonstrate that in immunocompetent preclinical models of breast cancer and melanoma, the combination of PS-targeting antibodies and anti-CTLA-4 and anti-PD1 antibodies demonstrate statistically significant anti-tumor responses than either anti-CTLA-4 or anti-PD-1 antibody alone. New data presented show statistically significant changes in levels of tumor infiltrating lymphocytes (TILs), a type of white blood cell implicated in killing tumor cells, in the PS-targeting and anti-PD-1 combination group over single treatment alone in a melanoma model. Specifically, data show increases in a number of markers used to determine immune activation, including CD3 and CD8 cells expressing PD-1, Lag-3 and CD137 (4-1BB). Furthermore, data show that CD8 T cells in the tumor had increased production of IFN-gamma and TNF-α, both known to assist in promoting immune activation and Granzyme-B which is involved in direct tumor killing.

About Keystone Symposia

Keystone Symposia serve as a catalyst for the advancement of biomedical and life sciences by connecting scientists within and across disciplines at conferences and workshops held at venues that create an environment conducive to information exchange, generation of new ideas and acceleration of applications that benefit society.

Links to these presentations can be found on the front page of Peregrine's website at www.peregrineinc.com.

About Bavituximab: A Targeted Investigational Immunotherapy

Scientific research has shown that tumors evade immune detection due partly to the expression of phosphatidylserine, or PS, a highly immunosuppressive molecule. Peregrine's immuno-oncology development program has developed bavituximab, an investigational monoclonal antibody that targets and binds to PS, blocking its immunosuppressive effects while activating tumor fighting immune cells, thus enabling the immune system with the ability to better recognize and fight cancer. Bavituximab's immune-stimulatory mechanism-of-action data is the subject of a manuscript published in the October 2013 issue of the

American Association for Cancer Research (AACR) peer-reviewed journal, Cancer Immunology Research. Bavituximab is currently being evaluated in several solid tumor indications, including non-small cell lung cancer (the SUNRISE Phase III trial), breast cancer, liver cancer, rectal cancer and advanced melanoma. In January 2014, bavituximab received Fast Track designation by the U.S. Food and Drug Administration (FDA) for the potential treatment in patients with second-line non-small cell lung cancer.

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.

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 data from pre-clinical studies may not correlate with the results from human clinical studies. 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, 2014 as well as any updates to these risk factors filed from time to time in the company's other filings with the Securities and Exchange Commission. 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.

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Source: Peregrine Pharmaceuticals