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Phase II Clinical Data Presented at SITC Annual Meeting Support Immunotherapeutic Mechanism of Action of Peregrine Pharmaceuticals' Bavituximab in Liver Cancer

Combination of Bavituximab and Sorafenib in Patients With Advanced Liver Cancer Resulted in Increased Cytotoxic T-cell Activation and Other Immune Responses Within Tumors Which Positively Correlated With Patient Outcome; Additional Presentations Demonstrate Bavituximab Combined With Anti-CTLA-4 Treatments Increased Tumor-Fighting Immune Cells and Reduced Immune-Suppression Resulting in Statistically Significant Anti-Tumor Activity in Preclinical Models of Breast Cancer and Melanoma

TUSTIN, CA -- (Marketwired) -- 11/10/14 -- Peregrine Pharmaceuticals, Inc. (NASDAQ: PPHM) (NASDAQ: PPHMP), today announced the presentation of clinical and preclinical data related to the company's immuno-oncology development program and its lead investigational immunotherapy drug candidate bavituximab at the Society for Immunotherapy of Cancer's (SITC) 29th Annual Meeting and Associated Programs. This conference was held November 6-9, 2014 at the Gaylord National Hotel and Convention Center in National Harbor, Maryland. The translational clinical presentation titled: "Correlative Studies of a Phase II Clinical Study of Bavituximab and Sorafenib in Patients with Advanced Hepatocellular Carcinoma (HCC)" was presented Saturday.

"The correlative studies from these liver cancer patients provide further support for the hypothesis that bavituximab can positively regulate immune cells in tumors and thus may provide a new and exciting possibility for therapeutic manipulation of the tumor microenvironment," said Dimitry I. Gabrilovich, M.D., Ph.D., a collaborator on the studies and a Christopher M. Davis Professor in Cancer Research and Program Leader, Translational Tumor Immunology at The Wistar Institute in Philadelphia, Pennsylvania.

Data from this translational sub-study consisting of six patients show that half of the patients evaluated had an increase in tumor fighting immune cells following one cycle of treatment, similar to what has been shown for PS-targeting antibodies in multiple preclinical cancer models. In addition, the increase in immune response was associated with patients that remained on study treatment for longer time periods, suggesting the possibility of a clinically meaningful anti-tumor immune response. Three of the six patients evaluated had increased infiltration of CD8 T-cells into the tumor microenvironment which correlated with a prolonged time to disease progression. In addition, these responding patients expressed lower levels of PD-1, an established marker of T cell activation and disease outcome, prior to the initiation of therapy, followed by a measurable rise.

"These translational data align very well with previous preclinical data that define bavituximab's immunotherapy-based mechanism of action and show that the combination of bavituximab and sorafenib can potentiate an anti-tumor response in patients with advanced HCC," said Nikoletta Lea Kallinteris, M.Sc., CCRP, senior scientist, translational research at Peregrine Pharmaceuticals. "Another interesting observation is that the increase in PD-1 positive T-cells observed in several patients from this trial provides rationale for the potential of bavituximab to increase the number of subjects who may respond to PD-1 targeted treatments.

Peregrine is actively working to further explore the potential of bavituximab in this and other indications as we look forward to the presentation of full clinical outcome data from this Phase II clinical trial by its lead investigator, Adam Yopp, M.D., assistant professor of surgery at the University of Texas Southwestern Medical Center in Dallas, Texas at a future medical conference.

More information on this trial can be found at www.ClinicalTrials.gov using Identifier NCT01264705.

In addition to this translational clinical data, two additional preclinical data presentations were made at the Saturday poster session of the SITC annual meeting. A poster titled, "Antibody-mediated Blockade of Phosphatidylserine (PS) Enhances the Anti-tumor Activity of Immune Checkpoint Inhibitor anti-PD-1 by Affecting Myeloid Derived Suppressor Cells (MDSC) and Lymphocyte Populations in a Breast Tumor Microenvironment" was presented by Bruce Freimark, Ph.D., director, preclinical research, oncology at Peregrine Pharmaceuticals. Data show that the combination of the phosphatidylserine (PS)-targeting antibody ch1N11, the preclinical equivalent to bavituximab, and an anti-PD-1 antibody demonstrated statistically significant ($p=0.036$) tumor growth inhibition in mice bearing EMT-6 breast tumors compared to anti-PD-1 alone. Further, researchers using fluorescence-activated cell sorting (FACS) found that T cell infiltration of the tumor was significantly increased in tumors of mice treated with the combination of ch1N11 and anti-PD-1 compared to single agent treatments alone. Lastly, data show that the combination treatment resulted in a significant reduction in MDSCs, whose presence plays a dominant role in

suppressing the immune system associated with tumor progression in animal models.

The second pre-clinical presentation titled, "Antibody-mediated Blockade of Phosphatidylserine Enhances the Anti-tumor Activity of Immune Checkpoint Inhibitor anti-PD-1 by Affecting Myeloid Derived Suppressor Cells (MDSC) and Lymphocyte Populations in a Melanoma Tumor Microenvironment" was presented by Xianming Huang, Ph.D., assistant professor, Hamon Center for Therapeutic Oncology, Pharmacology, Simmons Comprehensive Cancer Center University of Texas Southwestern Medical Center, Dallas, Texas. Dr. Huang reviewed data showing that the PS-targeting antibody ch1N11, the preclinical equivalent to bavituximab, significantly enhances tumor growth inhibition of anti-PD-1 in the B16 model of melanoma as well as showing the suppression of outgrowth of tumors resistant to anti-PD-1 therapy. Researchers also show that the combination of ch1N11 and anti-PD-1 produced significantly greater T cell infiltration in both tumor models compared to single agents as well as an increased percentage of splenic T cells producing IL-2 and IFNg, factors associated with immune activation, in the K1735 tumor model. Data further show a significant reduction in MDSCs in the combination group when compared to single agents alone. Lastly, the combination of ch1N11 and an anti-PD-1 produced significantly decreased levels of M2 immunosuppressive macrophages in tumors of K1735 bearing animals compared to control treated animals.

The link to all of these posters can be found from the front page of the company's website at: www.peregrineinc.com.

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. 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 translational data obtained from future clinical studies may not correlate with the data from these studies and the risk that increase in immune response for the three noted patients does not lead to a clinically meaningful anti-tumor immune response. 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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