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# Peregrine Pharmaceuticals Presents Data at Annual Immunotherapy and Vaccine Summit (ImVacS) Supporting Ability of Bavituximab to Mediate Anti-Tumor T Cell Responses Across Multiple Tumor Types

*- Increasing Activated T Cells in Tumors Demonstrates Potential Complement to anti-PD-1 and anti-PD-L1 Checkpoint Inhibitors -*

*- Clinical and Preclinical Studies Demonstrate Estimated Survival Curves that Plateau -*

TUSTIN, Calif., Aug. 26, 2015 (GLOBE NEWSWIRE) -- Peregrine Pharmaceuticals, Inc. (NASDAQ:PPHM) (NASDAQ:PPHMP), a biopharmaceutical company focused on developing therapeutics to stimulate the body's immune system to fight cancer, today announced the presentation of a range of clinical, translational and pre-clinical study results highlighting the ability of bavituximab, Peregrine's investigational phosphatidylserine (PS)-signaling pathway inhibitor, to promote anti-tumor T cell mediated activity in several tumor types. The data were presented today by Jeff T. Hutchins, Ph.D., vice president, preclinical research at Peregrine Pharmaceuticals and chairperson of the Combination Immunotherapy Strategies session at the 10th Annual Immunotherapy and Vaccine Summit (ImVacS), being held August 24-28, 2015 in Boston, Massachusetts.

Bavituximab is an investigational immunotherapy designed to assist the body's immune system by targeting and modulating the activity of phosphatidylserine (PS), a highly immune-suppressive signaling molecule expressed broadly on the surface of cells in the tumor microenvironment. Peregrine's PS signaling pathway inhibitor candidates, including bavituximab, reverse the immunosuppressive environment that many tumors establish in order to proliferate and fight cancer by activating macrophages and cytotoxic T cells in tumors. Preclinical data demonstrate that combining the enhanced T cell anti-tumor activity of bavituximab-like antibodies with checkpoint inhibitors, such as anti-PD-1 antibodies, results in significantly improved tumor control in multiple models of cancer.

Dr. Hutchins' presentation highlighted key findings from several recent bavituximab-focused studies including:

- The potential of bavituximab to shift the tumor microenvironment from immuno-suppressive in which tumors evade immune detection to a state of immune activation in which the immune system recognizes and fights the tumor. Presented findings demonstrate that bavituximab-like antibodies significantly increase the prevalence of tumor infiltrating CD8+ T-cells and immune-activating cytokines, while decreasing macrophages and myeloid cells that allow the tumor to evade immune detection. This elucidation and confirmation of bavituximab's mechanism of action highlights the potential of bavituximab to enhance the anti-tumor effects of both chemotherapy and immune checkpoint inhibitors.

- Bavituximab increases the number of activated CD8+ cells in the tumor, which stimulates PD-1 expression, thereby upregulating the target for checkpoint inhibitors such as anti-PD-1 and anti-PD-L1.

  Importantly, translational study data across multiple cancers indicated that tumors with low PD-L1 or PD-1 expression on tumor infiltrating T cells showed promising signs of immune activation after treatment with bavituximab. This suggests the potential for bavituximab to activate a tumor specific immune response in patients with PD-L1 negative tumors that generally do not respond as well to PD-1 and PD-L1 inhibitors. By doing so, it is believed that bavituximab may hold potential to increase the number of patients able to respond to PD-1 and PD-L1 targeting immunotherapies.

  Furthermore, the combination of bavituximab-like antibodies and anti-PD-1 antibodies resulted in enhanced, synergistic anti-tumor activity in animal models of multiple tumor types, as compared to either agent alone. In some cases, complete tumor regressions were achieved, highlighting the anti-tumor potential of bavituximab in combination with checkpoint inhibitors such as anti-PD-1 antibodies.

- Results from several clinical and preclinical studies in a range of tumor types show that bavituximab and bavituximab-like antibodies, in combination with conventional therapy, have consistently demonstrated estimated survival curves that plateau.

"We continue to generate a broad collection of pre-clinical, translational and clinical data highlighting bavituximab's novel mechanism of action and synergistic activity for a range of combination treatments. These study results, particularly as they relate to the potential synergies between bavituximab and checkpoint inhibitors, create great excitement for us as we begin work with our new collaborators at Memorial Sloan Kettering Cancer Center and AstraZeneca, while continuing our long-standing relationship with the University of Texas Southwestern Medical Center where this technology was originally developed," said Dr. Hutchins. "By aligning with these world leaders in cancer immunotherapy to study novel immuno-oncology combination therapies, we are best positioning ourselves to maximize the potential role that bavituximab can play in this new era of innovative cancer treatments."

**About Bavituximab: A Targeted Investigational Immunotherapy**

Bavituximab is an investigational chimeric monoclonal antibody that targets phosphatidylserine (PS). Signals from PS inhibit the ability of immune cells to recognize and fight tumors. Bavituximab, the lead compound in Peregrine's immuno-oncology development program, blocks PS to alter this immunosuppressive signal and sends an immune activating signal. Targeting PS with bavituximab has been shown to shift the functions of immune cells in tumors, resulting in anti-tumor immune responses.

**About Peregrine Pharmaceuticals, Inc.**

Peregrine Pharmaceuticals, Inc. is a biopharmaceutical company with a pipeline of novel drug candidates in clinical trials focused on the treatment 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. 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 the clinical, translational and preclinical study results will not be duplicated in later stage clinical trials, the risk that the combination of bavituximab with PD-L1 and PD-1 based regimens will not increase the responsiveness of such PD-L1 and /or PD-1 regimens and the risk that data from the initial clinical trial does not support further development of this treatment combination. 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, 2015 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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