May 14, 2002

Peregrine Pharmaceuticals Announces Publication of Data Demonstrating Development of Genetically Engineered TNT Antibody Fragments Expressed in Mammalian Cells

TUSTIN, Calif., May 14, 2002 (BW HealthWire) --

Major Milestone Reached in Development of TNT Imaging and Diagnostic Agents

Peregrine Pharmaceuticals, Inc. (Nasdaq:PPHM) announced today that in an article published in the journal Hybridoma and Hybridomics, researchers described how they successfully generated stable fragments of a Tumor Necrosis Therapy (TNT) antibody in a mammalian expression system. The article, "Stable, Genetically Engineered F(ab')2 Fragments of Chimeric TNT-3 Expressed in Mammalian Cells" in the current issue of the journal (Volume 21, Number 1, 2002), details how these fragments can be manufactured in large quantities in a mammalian cell expression system.

One major hurdle for the commercialization of antibody fragments for human use as imaging and diagnostics agents is the efficient manufacture of large quantities of pure, homogenous antibody fragments. The manufacture of antibody fragments is typically achieved by digesting (chopping up) intact whole antibodies into fragments. This process often leads to a low yield of pure homogeneous antibody fragments, antibody fragments of varying size, or antibody fragments with diminished binding affinity, all of which are undesirable from a commercialization perspective. Recent advances have successfully yielded the production of antibody fragments in yeast or bacterial expression systems. However, for various technical and biological reasons, antibody fragments manufactured in these expression systems are not as desirable as production in high yield mammalian cell expression systems. Earlier attempts to manufacture antibody fragments in mammalian expression systems have resulted in lower than desired production yields.

"This is a major milestone in the development of TNT-based imaging and diagnostic agents for commercial use," said Alan L. Epstein, M.D., Ph.D., Peregrine's scientific consultant, inventor of the TNT platform technology, and co-author of the study. "Our research also showed that these antibody fragments have the desired clearance profiles and retain their stability in vitro and in vivo. We now look forward to applying this technique to Peregrine's other TNT antibodies for the generation of imaging and diagnostic clinical candidates."

About Antibody Fragments

Monoclonal antibodies (MAbs) are used broadly as cancer therapy and imaging agents because they can bind selectively to a specific target. The most common MAbs used today are whole "intact" antibodies consisting of two heavy and two light chains. Although intact MAbs are the most common, they may not be the most efficient or desired form of antibody for imaging and diagnostic agents. Antibody fragments clear faster than intact antibodies from blood circulation. Therefore, imaging agents using antibody fragments may be able to achieve a high signal-to-noise ratio, which is desirable for imaging and diagnostic agents. Signal-to-noise ratio is where a larger amount of antibody is localized at the target (signal) while the free floating antibody in the blood pool (noise) is minimized, giving much sharper, more defined images of the target tissue. Images with low signal to noise ratios make it difficult for physicians to delineate between actual cancer tissue and background noise, resulting in a higher incidence of missed diagnoses and false positives.

About Tumor Necrosis Therapy (TNT)

Tumor Necrosis Therapy is Peregrine's tumor-targeting platform technology, which targets DNA-associated antigens in the nucleus of necrotic cancer cells. TNT exploits the fact that most tumors produce numerous necrotic cells as a by-product of their growth. Healthy tissues quickly flush away necrotic cells, but tumors retain them, locking them inside the core of the tumor mass. The outer membranes of necrotic cancer cells become leaky, allowing TNT to permeate inside of the cell and bind to its DNA target. TNT then anchors its deadly payload at the core of the tumor, killing the surrounding tumor cells. Since DNA exists in all cells, TNT can potentially target most solid tumor cancers. In pre-clinical and clinical studies, radiolabeled TNT has localized and imaged numerous tumor types including: lung, colon, breast, brain, liver, prostate, pancreas, cervical, sarcoma, gastric, melanoma and hepatoma cancers. Given its broad targeting capability, TNT may show promise as an imaging and diagnostic agent.

About Peregrine Pharmaceuticals, Inc.

Peregrine Pharmaceuticals is a biopharmaceutical company focused on the development, commercialization, and licensing of unique technologies for the treatment of cancer, primarily based on its three "collateral targeting technologies." Peregrine's Tumor Necrosis Therapy (TNT), Vasopermeation Enhancement Agents (VEA), and Vascular Targeting Agents (VTA) target cell structures and cell types that are common among solid tumor cancers, giving them broad applicability across various tumor types. The company's lead TNT anti-cancer drug, Cotara™, is currently in a multi-center Phase II clinical trial for brain cancer and Phase I trials for colorectal, pancreas, liver, soft tissue sarcoma and biliary cancers. Final preparations are being made to start a multi-center, multi-national Phase III trial for brain cancer. Peregrine's Oncolym®, for the treatment of non-Hodgkin's B-cell lymphoma, is currently in a multi-center Phase I/II study. Copies of Peregrine press releases, SEC filings, current price quotes and other valuable information for investors may be found on the website http://www.peregrineinc.com.

Safe Harbor Statement: This release may contain certain forward-looking statements that are made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. Actual events or results may differ from the company's expectations as a result of risk factors discussed in Peregrine's reports on file with the U.S. Securities and Exchange Commission, including, but not limited to, the company's report on Form 10-K for the year ended April 30, 2001 and on Form 10-Q for the quarter ended January 31, 2002.

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