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Peregrine Pharmaceuticals Announces Patent Grant For Its Phospholipid Vascular Targeting Agent Program

TUSTIN, Calif., Dec. 15 /PRNewswire-FirstCall/ -- Peregrine Pharmaceuticals (Nasdaq: PPHM) announced today the grant of European Patent No. 1 098 665, which extends the company's patent coverage for its Vascular Targeting Agent (VTA) technology platform. Peregrine's VTA technology is a platform for the treatment of solid tumors based on agents that specifically destroy or occlude tumor blood vessels, thus depriving a tumor of oxygen and nutrients, resulting in an anti-tumor effect. The new European patent, entitled "Cancer Treatment Methods Using Therapeutic Conjugates That Bind to Aminophospholipids," specifically covers VTAs that bind to a new category of tumor blood vessel markers termed "aminophospholipids" such as phosphatidylserine (PS).

The patent further extends Peregrine's exclusive coverage of VTA compositions and treatment methods, which is protected by numerous U.S. and international patents. This also complements Peregrine's recent progress in the development of cancer therapeutics based on targeting aminophospholipids. The newly issued patent covers VTAs that localize to aminophospholipids, such as phosphatidylserine (PS) and phosphatidylethanolamine (PE), discovered to be lipid markers of tumor blood vessels. These aminophospholipid-targeting VTAs can be used alone (naked) or can be used to deliver attached therapeutic agents, such as toxins, cytokines, chemotherapeutic agents and coagulants, into intimate contact with the tumor blood vessels, where they exert their anti-tumor effect.

About Phosphatidylserine (PS)

PS is an aminophospholipid or anionic phospholipid. The main function of phospholipids is the formation of cellular membranes. In normal cells, anionic phospholipids are on the inside of the cellular membrane. Exposure of anionic phospholipids on the cell surface occurs during apoptosis (normal cell death), necrosis, cell injury, cell activation and malignant transformation. Factors in the tumor microenvironment cause a breakdown of asymmetry and exposure of anionic phospholipids on the cell surface of the blood vessel and malignant cells.

Anionic phospholipids are attractive as tumor blood vessel targets for several reasons: they are abundant; they are on the surface of the endothelial cells that line tumor vessels that are accessible to VTAs in the blood; they are present on a significant percentage of endothelial cells in diverse solid tumors, and they appear to be absent from vascular endothelium in all normal tissues.

Anti-PS antibodies may also have uses as anti-viral agents. Anti-PS drugs operate on a new principle in virology. When they egress from a host cell after replication, many enveloping viruses capture some of the lipids of the host cell for use as their outer membrane. Lacking the natural mechanism for properly aligning the lipids, the outer membranes of these viruses have lipids that are inside-out. The anti-PS antibodies direct our immune responses to the inside-out components of the viral membrane, or envelope. These drugs potentially could be effective against numerous viruses that have similar outer membranes.

About Peregrine Pharmaceuticals

Peregrine Pharmaceuticals is a biopharmaceutical company focused on the development, commercialization and licensing of unique technologies for the treatment of cancer, primarily based on three collateral targeting technologies. Peregrine's Tumor Necrosis Therapy (TNT), Vasopermeation Enhancement Agents (VEA), and Vascular Targeting Agents (VTA) technologies target cell structures and cell types that are common among solid tumor cancers, giving them broad applicability across various tumor types. The company has received approval from the FDA to start a Cotara™ registration clinical trial for brain cancer. Cotara is also being studied in a Phase I trial for colorectal cancer at Stanford University. The company is focused on licensing collaborations for all of its technologies under development. The company's Oncolym® technology to treat non-Hodgkin's B-cell lymphoma in Phase I/II of development is available for licensing. The company operates a cGMP contract manufacturing facility for monoclonal antibodies and recombinant proteins through its wholly owned subsidiary Avid Bioservices, Inc. (www.avidbio.com). Copies of Peregrine press releases, SEC filings, current price quotes and other valuable information for investors may be found on the website 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, Peregrine's report on Form 10-Q for the quarter ended July 31, 2003 and on Form 10-K for the year ended April 30, 2003.

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