

**Contacts:**     **Leiv Lea**  
Pharmacyclics, Inc.  
(408) 774-0330  
**Carolyn Bumgardner Wang**  
WeissComm Partners  
(415) 946-1065

**PHARMACYCLICS IDENTIFIES FUNCTIONAL BIOMARKERS FOR ITS  
NOVEL HDAC INHIBITOR AND DEMONSTRATES PRECLINICAL ANTI-  
TUMOR ACTIVITY WITH BRUTON'S TYROSINE KINASE INHIBITORS**

**Sunnyvale and Los Angeles, Calif. – April 18, 2007** -- Pharmacyclics, Inc. (Nasdaq: PCYC) today announced data from two preclinical studies, one identifying a functional biomarker for its novel histone deacetylase (HDAC) inhibitor and another demonstrating preclinical anti-tumor activity with its Bruton's tyrosine kinase (BTK) inhibitor compounds. The data were presented at the American Association for Cancer Research (AACR) 2007 Annual Meeting being held this week in Los Angeles.

Results of an *in vitro* study (Abstract #1966) demonstrate that Pharmacyclics' HDAC inhibitor, PCI-24781 inhibits homologous recombination, a cellular mechanism of DNA repair, by both down-regulating RAD51 gene expression, and by affecting the ability of the cell to form RAD51 foci at the site of the lesion. The RAD51 gene provides instructions for making a protein that is essential for the repair of damaged DNA. These data suggest that PCI-24781 could be used successfully in combination with other cancer therapies that generate lesions repaired by homologous recombination, such as gamma-irradiation, cisplatin, and oxaliplatin, and show the usefulness of using RAD51, an enzyme, as a biomarker to predict clinical efficacy. Researchers observed that PCI-24781-treated cells are more sensitive to DNA damaging cancer agents, suggesting that it

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may act in part by inhibiting DNA repair. PCI-24781 is currently in Phase 1 clinical trials evaluating its safety and effectiveness in both solid and hematological malignancies.

“Not only have we further elucidated the mechanism by which our HDAC inhibitor may kill cancer cells, we have also identified a biomarker that may predict its efficacy in cancer patients,” stated Richard A. Miller, M.D., president and CEO of Pharmacyclics. “We have filed patents based on this new information, and are moving this promising compound forward in clinical trials incorporating use of this biomarker.”

In a separate study, researchers tested the effects of Pharmacyclics’ BTK inhibitor, PCI-31523, on a variety of B cell receptor (BCR) -expressing lymphoma cell lines. Because many lymphomas require an intact BCR for survival, they should be uniquely sensitive to drugs that target the BCR pathway. Results of the study (Abstract #5398) demonstrated that multiple diffuse large B cell lymphoma lines and follicular lymphoma lines are sensitive to PCI-31523, with growth arrest and apoptosis occurring at concentrations as low as 0.5uM.

In other studies, oral dosing of PCI-31523 (10mg/kg qd) resulted in almost complete inhibition of inflammation in an animal model of arthritis, indicating that this compound may be effective in both autoimmune disease and lymphoma.

### **About HDAC Inhibition and Cancer**

Histone deacetylase (HDAC) inhibitors are a new class of anticancer drugs that modulate transcriptional activity in cells and may thus block angiogenesis and cell cycling, key components of tumor proliferation. HDAC inhibitors also appear to promote apoptosis (cell death) and differentiation. These compounds also may improve the efficacy of

existing cancer therapies and, because they target the transcription of specific disease-causing genes, may offer new therapeutic approaches to cancer therapy.

### **About Bruton's Tyrosine Kinase and Immune Diseases**

B-cells are immune cells, which are activated by antigens, pathogens or, in the case of autoimmunity, by host tissues. B-cells produce antibodies, which when self-reactive can trigger autoimmune disease. Activation of B-cells is also thought to play a major role in lymphomas where continuous, or tonic, stimulation results in uncontrolled B-cell proliferation. Btk is a tyrosine kinase inside B-cells that plays an early key role in B-cell activation. Drugs that can inhibit Btk may prevent B-cell activation and therefore may play a role in treatment of lymphomas or autoimmune disease. Other tyrosine kinases are important in cell signaling and have been targets for other drugs such as imatinib mesylate (Gleevec<sup>®</sup>), which is approved for treatment of certain leukemias. New drug or biological candidates targeting B-cells, including the recently approved rituximab (Rituxan<sup>®</sup>) for lymphomas and rheumatoid arthritis, are aimed at eliminating abnormally functioning B-cells.

### **About Pharmacyclics**

Pharmacyclics is a pharmaceutical company developing innovative products to treat cancer and other serious diseases. The company is leveraging its small-molecule drug development expertise to build a pipeline in oncology and other diseases based on a wide range of targets, pathways and mechanisms. Its lead product, Xcytrin<sup>®</sup> (motexafin gadolinium) Injection, has completed Phase 3 clinical trials and several ongoing Phase 1 and Phase 2 clinical trials are evaluating Xcytrin as a single agent or in combination with chemotherapy and/or radiation in multiple cancer types. More information about the company, its technology, and products can be found at [www.pharmacyclics.com](http://www.pharmacyclics.com).

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NOTE: Other than statements of historical fact, the statements made in this press release about plans for our NDA filing, enrollment and future plans for our clinical trials, progress of and reports of results from preclinical and clinical studies, clinical development plans and product development activities are forward-looking statements, as defined in the Private Securities Litigation Reform Act of 1995. The words "believe," "will," "may," "continue," "plan," "expect," "intend," "anticipate," variations of such words, and similar expressions also identify forward-looking statements, but their absence does not mean that the statement is not forward-looking. The forward-looking statements are not guarantees of future performance and are subject to risks and uncertainties that may cause actual results to differ materially from those in the forward-looking statements. Factors that could affect actual results include risks associated with the initiation, timing, design, enrollment and cost of clinical trials; unexpected delays in clinical trials; the fact that data from preclinical studies and Phase 1 or Phase 2 clinical trials may not necessarily be indicative of future clinical trial results; our ability to obtain future financing and fund the product development of our pipeline; our ability to establish successful partnerships and collaborations with third parties; the regulatory approval process in the United States and other countries; and our future capital requirements. For further information about these risks and other factors that may affect the actual results achieved by Pharmacyclics, please see the company's reports as filed with the U.S. Securities and Exchange Commission from time to time, including but not limited to its annual report on Form 10-K for the period ended June 30, 2006 and its subsequently filed quarterly reports on Form 10-Q. Forward-looking statements contained in this announcement are made as of this date, and we undertake no obligation to publicly update any forward-looking statement, whether as a result of new information, future events or otherwise.

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