Darinaparsin Data Presented at AACR

-- Data Highlights Differential Molecular Mechanisms --

WASHINGTON, Apr 20, 2010 (BUSINESS WIRE) -- ZIOPHARM Oncology, Inc. (Nasdaq: ZIOP), announced today that preclinical data on the novel organic arsenic darinaparsin (Zinapar™, or ZIO-101) were presented at the American Association for Cancer Research (AACR) Annual Meeting in Washington, D.C. The presentation was from the team of James Goldenring, MD, PhD, Sanger Professor of Surgery and Cell & Developmental Biology, and Vice Chairman of Surgical Research at the Vanderbilt University Medical Center.

The Vanderbilt team studied the ability of darinaparsin (organic arsenic) to induce RNA stress granules, a critical survival adaptation mechanism for cells. Darinaparsin caused a stress granule response similar to sodium arsenite, an inorganic arsenic, but at lower concentrations of molecule. In addition, in a uterine sarcoma (MES-SA) cell line that expresses high levels of mdr-1 mRNA and P-glycoprotein (cancer treatment resistance factors); cells were extremely sensitive to darinaparsin. Findings showed an enhanced cytotoxic effect of darinaparsin on this otherwise chemotherapeutic resistant solid tumor cell line.

The team also evaluated the effect of darinaparsin on different leukemia cell lines including Jurkat (T-cell lymphoblastic leukemia derived), Oci and THP1 (acute myeloid leukemia derived). Interestingly, they found that Jurkat cells did not develop stress granules in response to darinaparsin treatment and this cell line showed accelerated toxicity compared with THP1 and Oci cells, which did form stress granules. These studies demonstrate that darinaparsin has a different spectrum of activity than sodium arsenite and can elicit differential molecular mechanisms of cell killing on specific classes of tumor cells.

"These different mechanisms between inorganic and organic arsenic together with clinical data demonstrating activity and safety profile suggest that darinaparsin could be a valuable addition for the treatment of various cancers," commented James Goldenring, MD, PhD, Sanger Professor at Vanderbilt University Medical Center.

Phase I clinical studies of the oral form of darinaparsin are continuing while the Company moves to a potential pathway for regulatory approval of the IV form in peripheral T-cell lymphoma.

About ZIOPHARM Oncology, Inc.:

ZIOPHARM Oncology is a biopharmaceutical company engaged in the development and commercialization of a diverse portfolio of cancer drugs. The Company is currently focused on three clinical programs.

Palifosfamide (Zymafos™ or ZIO-201) references a novel composition (tris formulation) that comprises the functional active metabolite of ifosfamide, a standard of care for treating sarcoma, lymphoma, testicular, and other cancers. Palifosfamide delivers only the cancer fighting component of ifosfamide. It is expected to overcome the resistance seen with ifosfamide and cyclophosphamide, two of the most commonly used DNA-alkylating drugs used to treat cancers. Palifosfamide does not have the toxic metabolites of ifosfamide that cause the debilitating side effects of "fuzzy brain" (encephalopathy) and severe bladder inflammation. It may also have other advantages. Intravenous palifosfamide is currently in a randomized Phase II trial to treat unresectable or metastatic soft tissue sarcoma in the front- and second-line setting with the Company having reported interim positive results in late 2009; a registration trial in the same setting is expected to initiate following U.S. Food and Drug Administration (FDA) review in the first half of this year. An oral form of palifosfamide has been developed preclinically to the investigational new drug application stage.

Darinaparsin (Zinapar™ or ZIO-101) is a novel mitochondrial-targeted agent (organic arsenic) being developed for the treatment of various hematologic and solid cancers. Preclinical and clinical studies to date have demonstrated that darinaparsin is considerably less toxic than inorganic arsenic, particularly with regard to cardiac toxicity. The Company has reported favorable results from a Phase II trial with IV-administered darinaparsin in lymphoma, particularly peripheral T-cell lymphoma ("PTCL"), at the American Society of Clinical Oncology (ASCO) in May of 2009 which would serve as the basis for ongoing clinical study in PTCL following regulatory review and available financial resources Phase I trials with the oral form are ongoing in both hematological malignancies and solid tumors.

Indibulin (Zybulin™ or ZIO-301) is a novel, oral tubulin binding agent that targets both mitosis and cancer cell migration. In

addition, indibulin is expected to have several potential benefits, including oral dosing, application in multi-drug resistant tumors, no neuropathy and minimal overall toxicity**.** In multiple Phase I trials in cancer patients, oral indibulin has been administered both as a single agent and in combination with favorable activity and a promising safety profile that does not include the neurotoxicity seen with all of the other classes of tubulin binding agents. Most recently, results of oral indibulin in combination with oral capecitabine (Xeloda$^{(R)}$) were presented at last year's American Society of Clinical Oncology (ASCO) along with the preclinical findings of a novel dosing schedule conducted under the direction of Dr. Larry Norton; employing this dosage schedule, the Company has initiated a Phase I study in breast cancer patients with the Breast Cancer Medicine Service at Memorial Sloan-Kettering Cancer Center.

ZIOPHARM's operations are located in Boston, MA with an executive office in New York City. Further information about ZIOPHARM may be found at www.ziopharm.com.

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Forward-Looking Safe Harbor Statement:

This press release contains forward-looking statements for ZIOPHARM Oncology, Inc. that involve risks and uncertainties that could cause the Company's actual results to differ materially from the anticipated results and expectations expressed in these forward-looking statements. These statements are based on current expectations, forecasts and assumptions that are subject to risks and uncertainties, which could cause actual outcomes and results to differ materially from these statements. Among other things, there can be no assurance that any of the Company's development efforts relating to its product candidates will be successful, or such product candidates will be successfully commercialized. Other risks that affect forward-looking information contained in this press release include the possibility of being unable to obtain regulatory approval of the Company's product candidates, the risk that the results of clinical trials may not support the Company's claims, the risk that pre-clinical or clinical trials will proceed on schedules that are consistent with the Company's current expectations or at all, risks related to the Company's ability to protect its intellectual property and its reliance on third parties to develop its product candidates, risks related to the sufficiency of existing capital reserves to fund continued operations for a particular amount of time and uncertainties regarding the Company's ability to obtain additional financing to support its operations thereafter. The Company assumes no obligation to update these forward-looking statements, except as required by law.

SOURCE: ZIOPHARM Oncology, Inc.

ZIOPHARM Oncology, Inc.
Tyler Cook, 617-259-1982
tcook@ziopharm.com
or
Dennis S. Dobson, 203-258-0159
dsdobson@optonline.net