Sunesis Announces Publication of Nonclinical Voreloxin Data in Leukemias

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Studies Demonstrate Voreloxin Acts Synergistically With Cytarabine and Induces Bone Marrow Aplasia

SOUTH SAN FRANCISCO, CA, Jan 14, 2010 (MARKETWIRE via COMTEX News Network) -- Sunesis Pharmaceuticals, Inc. (NASDAQ: SNSS) today announced the publication of new nonclinical studies with the Company's lead drug candidate, voreloxin, in the journal Cancer Chemotherapy and Pharmacology. The results demonstrate voreloxin's potent cytotoxic activity in human acute leukemia cell lines and in an in vivo model when used alone, and enhanced or synergistic activity when used in combination with cytarabine. Sunesis is currently completing Phase 2 studies of voreloxin as a single-agent or in combination with cytarabine in acute myeloid leukemia (AML) and expects to begin Phase 3 testing in AML later in 2010.

"These data contribute to our growing understanding of voreloxin's nonclinical profile, and, in keeping with our philosophy of clinical development informed by translational research, are directly relevant to our clinical program," said Judith A. Fox, Ph.D., Vice President of Product and Preclinical Development at Sunesis. "We studied voreloxin alone and in combination with cytarabine in leukemia cell lines, as well as in a mouse model of bone marrow ablation. The additive and synergistic effects of the combination in vitro, coupled with the supra-additive effects of the drugs in vivo, translate directly to our ongoing Phase 2 AML program. Importantly, the effects of voreloxin and the combination regimen on bone marrow were fully reversible, mirroring the treatment paradigm for AML."

Voreloxin, alone and in combination with cytarabine, was evaluated in 3 human acute leukemia cell lines: HL-60 (acute promyelocytic leukemia), MV4-11 (AML with a FLT3 mutation) and CCRF-CEM (acute lymphoblastic leukemia). Voreloxin was active in all the leukemia cell lines, including the AML cell line, which is relatively resistant to cytarabine in vitro. Using a combination index (CI) analysis, voreloxin with cytarabine demonstrated synergistic cytotoxic activity HL-60 and MV4-11 cells, and additive activity in CCRF-CEM cells.

In a series of elegant in vivo studies, a murine model of bone marrow ablation was used to evaluate the activity of voreloxin and cytarabine alone and in combination. Bone marrow cellularity, peripheral white blood cell and platelet counts were monitored to assess the impact of and recovery from the study treatments. Voreloxin alone or in combination with cytarabine caused reversible bone marrow ablation accompanied by profound reductions in peripheral white blood cells that were reversible within one week, consistent with the therapeutic goals of AML treatment. The activity of voreloxin at maximum tolerated dose (MTD) was superior to cytarabine at MTD. In addition, the combination demonstrated supra-additive activity in vivo, with a substantially enhanced, but fully reversible, reduction in bone marrow cellularity as compared to each agent alone.

The Cancer Chemotherapy and Pharmacology article and full, published data set are available online at www.springerlink.com/content/n7577n7281832171/.

About Voreloxin

Voreloxin is a first-in-class anticancer quinolone derivative, or AQD, a class of compounds that has not been used previously for the treatment of cancer. Voreloxin both intercalates DNA and inhibits topoisomerase II, resulting in replication-dependent, site-selective DNA damage, G2 arrest and apoptosis. Voreloxin is currently being evaluated in a Phase 2 clinical trial (known as the REVEAL-1 trial) in previously untreated elderly AML patients and in a Phase 1b/2 clinical trial combining voreloxin with cytarabine for the treatment of patients with relapsed/refractory AML, as well as in an ongoing Phase 2 single-agent trial in platinum-resistant ovarian cancer.

About Acute Myeloid Leukemia

AML is a rapidly progressing cancer of the blood characterized by the uncontrolled proliferation of immature blast cells in the bone marrow. The Leukemia and Lymphoma Society estimates that nearly 13,000 new cases of AML will be diagnosed and approximately 9,000 deaths from AML will occur in the U.S. in 2009. AML is generally a disease of older adults, and the median age of a patient diagnosed with AML is about 67 years. AML patients with relapsed or refractory disease and newly diagnosed AML patients over 60 years of age with poor prognostic risk factors typically die within one year, resulting in an acute need for

new treatment options for these patients.

About Sunesis Pharmaceuticals

Sunesis is a biopharmaceutical company focused on the development and commercialization of new oncology therapeutics for the treatment of solid and hematologic cancers. Sunesis has built a highly experienced cancer drug development organization committed to advancing its lead product candidate, voreloxin, in multiple indications to improve the lives of people with cancer. For additional information on Sunesis Pharmaceuticals, please visit http://www.sunesis.com. SUNESIS and the logo are trademarks of Sunesis Pharmaceuticals, Inc.

This press release contains forward-looking statements, including without limitation statements related to voreloxin's efficacy, safety profile and effects as a single agent and in combination with other AML treatments in both clinical and nonclinical studies, voreloxin's mechanism of action and results that may warrant further clinical evaluation of voreloxin. Words such as "demonstrate," "enhanced," "contribute," "translate," "active," "caused," "demonstrated" and similar expressions are intended to identify forward-looking statements. These forward-looking statements are based upon Sunesis' current expectations. Forward-looking statements involve risks and uncertainties. Sunesis' actual results and the timing of events could differ materially from those anticipated in such forward-looking statements as a result of these risks and uncertainties, which include without limitation, the risk that Sunesis' drug development activities for voreloxin could be halted or significantly delayed for various reasons, the risk that Sunesis' clinical trials for voreloxin may not demonstrate safety or efficacy or lead to regulatory approval, the risk that preliminary data and trends may not be predictive of future data or results, the risk that Sunesis' nonclinical studies and clinical trials may not satisfy the requirements of the FDA or other regulatory agencies, risks related to the conduct of Sunesis' clinical trials, risks related to the manufacturing of voreloxin, and the risk that Sunesis' proprietary rights may not adequately protect voreloxin. These and other risk factors are discussed under "Risk Factors" and elsewhere in Sunesis' Quarterly Report on Form 10-Q for the quarter ended September 30, 2009 and other filings with the Securities and Exchange Commission. Sunesis expressly disclaims any obligation or undertaking to release publicly any updates or revisions to any forward-looking statements contained herein to reflect any change in the company's expectations with regard thereto or any change in events, conditions or circumstances on which any such statements are based.

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