Sunesis Pharmaceuticals Announces Presentation of Voreloxin Clinical Data in Patients with Acute Myeloid Leukemia at the 50th Annual Meeting of the American Society of Hematology

December 7, 2008 1:58 PM ET

SAN FRANCISCO, Dec 07, 2008 /PRNewswire-FirstCall via COMTEX News Network/ --

--Complete Remissions Achieved with Voreloxin in Poor Risk Frontline Elderly AML and in Combination with Cytarabine in Relapsed/Refractory AML-

--Conference Call Scheduled for Tuesday, December 9 at 11:00 am ET to Discuss Phase 2 Study Results in AML--

Sunesis Pharmaceuticals, Inc. (Nasdaq: SNSS) today announced the presentation of new data from two ongoing clinical trials demonstrating that the company's novel drug candidate, voreloxin, shows promising safety and efficacy results both in patients with newly diagnosed and relapsed/refractory acute myeloid leukemia (AML). These data were presented today at two poster sessions at the 50th Annual Meeting of the American Society of Hematology in San Francisco. The presentations are highlighted below.

Phase 2 Study of Voreloxin as Single Agent Therapy (REVEAL-1 Trial)

Interim data from the REVEAL-1 (Response Evaluation of VorEloxin in AmL) single agent Phase 2 trial show that voreloxin induces complete remissions in poor risk frontline elderly AML patients who are unlikely to benefit from standard induction chemotherapy. Many older AML patients cannot tolerate or do not respond well to standard induction chemotherapy. In Schedule A, 29 patients with a median age of 75 were enrolled and treated with 72 mg/m(2) of voreloxin weekly for three weeks. Eleven patients achieved a complete remission (CR) or complete remission without full platelet recovery (CRp) for an overall remission rate of 38 percent. An additional 5 patients had bone marrow blast reductions to less than 5 percent. The median duration of response for patients achieving a CR or CRp has not been reached.

Grade 3 or higher non-hematologic adverse events occurring in more than 10 percent of patients include febrile neutropenia, mucosal inflammation and infections. The 30-day all-cause mortality rate was 17 percent, which compares favorably to standard induction chemotherapy. Infection was the most common cause of early mortality.

Pre-specified complete remission criteria were exceeded in Schedule A. In an effort to improve tolerability while maintaining anti-leukemic activity, an alternative dose regimen is being investigated. Twenty-one patients have been enrolled and treated with 72 mg/m(2) of voreloxin dosed weekly for two weeks (Schedule B). Early data from these patients suggest that Schedule B appears to be better tolerated and anti-leukemic activity has been maintained. To date, of 18 evaluable patients, one achieved a CRp and five are hypoplastic and are awaiting hematologic count recovery. Three additional patients with bone marrow blast reductions are undergoing second induction cycles of treatment. Patients on Schedule B have demonstrated improved tolerability. The 30-day all-cause mortality is currently 6 percent.

"We have made great strides this year in our voreloxin program," said Daniel Swisher, Chief Executive Officer of Sunesis. "In just over six months, more than 50 patients have been enrolled in the REVEAL-1 Phase 2 trial. We believe this underscores the enthusiasm of the clinical investigators for voreloxin and the high unmet medical need for elderly AML patients."

"Voreloxin's anti-leukemic activity in this previously untreated, older adult patient population with AML is promising," said Robert K. Stuart, M.D., Professor of Medicine, Division of Hematology/Oncology, Department of Medicine, Medical University of South Carolina, and an investigator in the study. "I am encouraged by the complete remissions observed thus far in patients who are unlikely to benefit from standard induction therapy."

Phase 1b/2 Study of Voreloxin in Combination with Cytarabine in Relapsed/Refractory AML

Researchers also presented interim data from an ongoing Phase 1b/2 clinical trial testing voreloxin in combination with cytarabine. The Phase 1b/2 trial is designed to evaluate the safety, pharmacokinetics and anti-leukemic activity of escalating doses of voreloxin when administered on days one and four with a fixed dose of cytarabine given either as a continuous infusion (Schedule A) or as a daily IV bolus (Schedule B) for five days.

To date, 45 patients have been treated in Schedule A and preliminary data is available for 38 patients in the dose escalation portion of the study. Nine of these 38 patients have achieved a CR or CRp in voreloxin dose cohorts ranging from 20 to 90 mg/m (2). Complete remissions have been observed in both relapsed and in treatment refractory AML patients. Schedule A has also been generally well tolerated with an acceptable safety profile in this heavily pretreated population. A maximum tolerated dose (MTD) of 80 mg/m(2) of voreloxin was established for Schedule A, and AML patients in first relapse are now being enrolled at the MTD in the Phase 2 portion of this study.

Single agent cytarabine is the current treatment standard for relapsed AML patients dosed across a range of different dose levels administered by either bolus infusion or 24 hour continuous infusion with typical remission rates of approximately 20 percent. Schedule B was recently opened for enrollment with a starting dose of voreloxin at 70 mg/m(2) on days one and four. The first cohort of patients has been fully enrolled in Schedule B.

"Voreloxin has demonstrated anti-leukemic activity when administered in combination with cytarabine," said Judith E. Karp, M.D., Director, Adult Leukemia Program at The Sidney Kimmel Comprehensive Cancer Center at Johns Hopkins University and an investigator for the Phase 1 and Phase 1b/2 clinical trials of voreloxin in AML. "Voreloxin appears to be a promising new drug for the treatment of AML and I look forward to the results of continued clinical investigation."

Copies of these poster presentations are available at http://www.sunesis.com.

About Voreloxin

Voreloxin (formerly SNS-595), is a novel naphthyridine analog, structurally related to quinolones, 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, irreversible 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. In an ongoing Phase 2 single-agent trial in platinum-resistant ovarian cancer, voreloxin has shown objective responses and been generally well-tolerated.

Conference Call Information

Sunesis management will host a conference call on Tuesday, December 9, 2008, at 11:00 a.m. ET / 8:00 a.m. PT to discuss the voreloxin and SNS-032 clinical data presented at ASH. Individual and institutional investors can access the call via 1-877-856-1956 (U.S. and Canada) or +1-719-325-4805 (international). To access the live audio webcast or the subsequent archived recording, visit the "Investors and Media - Calendar of Events" section of the Sunesis website at www.sunesis.com. The webcast will be recorded and available for replay on the company's website until December 23, 2008.

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 over 13,000 new cases of AML were diagnosed and approximately 9,000 deaths from AML occurred in the U.S. during 2007. AML is generally a disease of older adults and the median age of a patient diagnosed with AML is about 67 years. A majority of elderly patients are not considered candidates for standard induction therapy or decline therapy, resulting in an acute need for new treatment options.

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.

This press release contains forward-looking statements including without limitation statements related to the potential safety, efficacy and commercial potential of voreloxin; planned additional clinical testing and development efforts for voreloxin; and the timing of enrollment in the ongoing clinical trials of voreloxin. Words such as "promising," "effort," "suggest," "appears," "encouraging," designed," "look forward," "estimate," "believe" 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, risks related to Sunesis' need for additional funding, the risk that Sunesis' development activities for voreloxin, including enrollment and reporting of results, could be halted significantly or 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' preclinical studies and clinical trials may not satisfy the requirements of the FDA or other regulatory agencies; and risks related to the conduct of Sunesis' clinical trials and manufacturing. These and other risk factors are discussed under "Risk Factors" and elsewhere in Sunesis' Annual Report on Form 10-K for the year ended December 31, 2007, Sunesis' Quarterly Report on Form 10-Q for the quarter ended September 30, 2008, 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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Contacts:	Media Contact:
Sunesis Pharmaceuticals, Inc.	Invigorate Communications
Eric Bjerkholt	Monique Greer
650-266-3717	415-946-1075

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www.sunesis.com