



First Patient Treated in Osiris Phase II Stem Cell Trial for Heart Attacks

Columbia, Maryland – April 2, 2009 – Osiris Therapeutics, Inc. (NASDAQ:OSIR) today announced the treatment of the first patient in a Phase II clinical trial evaluating Prochymal for the treatment of heart attacks. The first patient, a 58-year old man, was treated at the Heart Hospital of Austin, Texas.

Prochymal is a proprietary formulation of adult stem cells designed to provide therapeutic benefit by controlling inflammation, promoting tissue regeneration, and preventing scar formation. The double-blind, placebo-controlled study is designed to enroll approximately 220 patients following their first heart attack.

“This landmark study is very exciting for the entire field of cardiology and we are honored to have enrolled and treated the first patient,” said Roger Gammon, M.D., Medical Director of Research at Austin Heart. “The excellent safety profile and encouraging data from the Phase I trial makes Prochymal a promising therapy for the treatment of acute myocardial infarction. This trial will provide valuable data on the ability of these cells to prevent pathological remodeling, which is expected to have positive long-term implications for improved clinical outcomes in patients following a heart attack.”

Recently, Osiris completed enrollment in a Phase III trial evaluating Prochymal for the treatment of steroid-refractory acute graft versus host disease (GvHD). In 2008, Osiris and Genzyme Corp. announced a strategic alliance for the development and commercialization of Prochymal. Under the terms of the agreement, Osiris will commercialize Prochymal in the United States and Canada, and Genzyme will commercialize the treatment in all other countries.

About the Phase II Acute Myocardial Infarction Trial

The Phase II double-blind, placebo-controlled trial will evaluate the safety and efficacy of Prochymal in conjunction with standard of care to improve heart function in patients who experienced a first heart attack. The trial will be conducted at leading institutions and academic research centers in the United States and Canada. This trial focuses on patients who have suffered a severe myocardial infarction. To be classified as severe, the patient’s left ventricular ejection fraction, or LVEF, must be between 30% and 45% at baseline. LVEF, which reflects the fraction of blood pumped out of a ventricle with each heart beat, is a common measurement of overall heart function and typically declines after a heart attack. The target enrollment is 220 patients, and patients will be randomized to either Prochymal or placebo at 1:1. Efficacy endpoints determined from cardiac MRI include end systolic volume, LVEF and the ability of Prochymal to preserve functional heart tissue, or limit scar formation following a heart attack. In addition, functional and quality of life assessments will be performed.

About Prochymal

Prochymal is a preparation of mesenchymal stem cells specially formulated for intravenous infusion. The stem cells are obtained from the bone marrow of healthy adult donors. Prochymal is currently being evaluated in Phase III trials for steroid refractory GvHD, acute GvHD, and Crohn’s disease. Prochymal has been granted Fast Track status by FDA for all three of these indications. Prochymal also obtained Orphan Drug status by FDA and the European Medicines Agency for GvHD. Prochymal is being studied in Phase II trials for the treatment of COPD, type 1 diabetes, and acute myocardial infarction. Additionally, the Department of Defense recently awarded Osiris a contract to develop Prochymal as a treatment for acute radiation syndrome.

About Osiris Therapeutics

Osiris Therapeutics, Inc. is the leading stem cell therapeutic company focused on developing products to treat serious medical conditions in the inflammatory, orthopedic and cardiovascular areas. The Company’s pipeline of internally developed biologic drug candidates under evaluation includes Prochymal for inflammatory, autoimmune, and cardiovascular indications, as well as Chondrogen for arthritis in the knee. Osiris is a fully integrated company, with capabilities in research, development, manufacturing, and distribution of stem cell products. Osiris has a partnership with Genzyme Corporation for the development and commercialization of



Prochymal and Chondrogen in countries outside the United States and Canada. Osiris has developed an extensive intellectual property portfolio to protect the company's technology including 48 U.S. patents each having one or more foreign counterparts. Osiris, Prochymal and Chondrogen are registered trademarks of Osiris Therapeutics, Inc. More information can be found on the company's website, www.Osiris.com. (OSIR-G)

Forward-Looking Statements

This press release contains forward-looking statements. Forward-looking statements include statements about our expectations, beliefs, plans, objectives, intentions, assumptions and other statements that are not historical facts. Words or phrases such as "anticipate," "believe," "continue," "ongoing," "estimate," "expect," "intend," "may," "plan," "potential," "predict," "project" or similar words or phrases, or the negatives of those words or phrases, may identify forward-looking statements, but the absence of these words does not necessarily mean that a statement is not forward-looking. Examples of forward-looking statements include, but are not limited to, statements regarding the following: our product development efforts; our clinical trials and anticipated regulatory requirements and the ability to successfully navigate these requirements; the success of our product candidates in development; status of the regulatory process for our biologic drug candidates; implementation of our corporate strategy; our financial performance; our product research and development activities and projected expenditures, including our anticipated timeline and clinical strategy for Prochymal, Chondrogen and our other MSC and biologic drug candidates; our cash needs; patents and proprietary rights; the safety and ability of our potential products to treat disease and the results of our scientific research; our plans for sales and marketing; our plans regarding our facilities; types of regulatory frameworks we expect will be applicable to our potential products; and results of our scientific research. Forward-looking statements are subject to known and unknown risks and uncertainties and are based on potentially inaccurate assumptions that could cause actual results to differ materially from those expected or implied by the forward-looking statements. Risks and uncertainties related to the sale of our Osteocel assets and related transactions include typical business transactional risks, the risk of changing relationships with customers, suppliers or employees; and the risk that we may not be able to fully perform or generate or receive milestone payments. Our actual results could differ materially from those anticipated in forward-looking statements for many reasons, including the factors described in the section entitled "Risk Factors" in our Annual Report on Form 10-K and Quarterly Reports filed on Form 10-Q, with the United States Securities and Exchange Commission. Accordingly, you should not unduly rely on these forward-looking statements. We undertake no obligation to publicly revise any forward-looking statement to reflect circumstances or events after the date of this press release or to reflect the occurrence of unanticipated events.

For additional information, please contact:

Erica Elchin
Osiris Therapeutics, Inc.
(443) 545-1834
OsirisPR@Osiris.com

Media Contacts:
Stacey Holifield/Andrew Law
Schwartz Communications
(781) 684-0770
Osiris@schwartz-pr.com