Idera Pharmaceuticals and Collaborators Publish Promising Preclinical Data Targeting microRNA with Gene Silencing Oligonucleotide Technology

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CAMBRIDGE, Mass.--(BUSINESS WIRE)--Aug. 6, 2014-- Idera Pharmaceuticals, Inc. (NASDAQ: IDRA), a clinical-stage biopharmaceutical company developing nucleic acid therapeutics for patients with cancer and rare diseases, today announced the publication of promising preclinical data demonstrating the application of the Company's novel Gene Silencing Oligonucleotides (GSOs) to inhibit microRNAs implicated in neovascularization, a process that involves the proliferation of blood vessels in tissue and is crucial for recovery following cardiovascular events. The studies were conducted by Professor Paul Quax, Ph.D., and Yaël Nossent, Ph.D., of the Department of Surgery, Einthoven Laboratory for Experimental Vascular Medicine, Leiden University Medical Center in the Netherlands in collaboration with Idera. The paper, entitled *Inhibition of 14q32 microRNAs miR-329, miR-487b, miR-494 and miR-495 Increases Neovascularization and Blood Flow Recovery after Ischemia,* appears in the current online edition of *Circulation Research*.

In this paper, Drs. Quax and Nossent and colleagues report on the identification of specific microRNAs that regulate genes in the pathway involved in neovascularization, including the 14q32 microRNA gene cluster. Idera's proprietary GSO technology enabled inhibition of these specific microRNAs in both cell-based assays as well as in animal models. Treatment with GSOs led to microRNA-specific down-regulation and hence up-regulation of the microRNA's target genes. In a mouse model of double femoral artery ligation, treatment with specific GSOs targeting the identified microRNAs led to improved blood flow recovery after ischemia, increased perfusion and full recovery of tissue perfusion. These data show that GSOs targeting specific microRNAs have therapeutic potential for neovascularization.

"In this important study, we identified a large cluster of microRNAs that is involved in the recovery of blood flow following cardiovascular events," said Dr. Nossent. "Through our collaboration with Idera and our application of its GSOs, we were able to selectively target each of these microRNAs, elucidating their role in neovascularization. We were also able to demonstrate that inhibition of these specific microRNAs led to accelerated recovery of blood flow, thereby providing a rationale for a novel therapeutic approach."

"GSOs are novel structures designed to overcome the limitations of the currently practiced antisense technology, with a goal of providing an increased therapeutic index," said Walter Strapps, Ph.D., Executive Director of RNA Therapeutics for Idera. "We are very pleased with the results of our collaboration with Drs. Quax and Nossent, and that we were able to identify GSOs to inhibit specific microRNAs following systemic delivery. We are very encouraged with the emerging data, both internally and externally, supporting the potential of GSOs as third generation antisense therapeutic agents able to overcome the hurdles of current technologies. We are continuing to advance our GSO platform and remain on track to initiate proof-of-concept studies with GSO drug candidates in two disease indications as early as the second half of next year."

Authors of the paper are Sabine M.J. Welten, Msc, Antonius J.N.M. Bastiaansen, MD, Rob C.M. de Jong, Msc, Margreet R. de Vries, PhD, Erna A.B. Peters, Bsc, Martin C. Boonstra, Msc, Paul H.A. Quax, PhD and A. Yaël Nossent, PhD of Leiden University Medical Center; Søren P. Sheikh, MD, PhD of Odense University Hospital; Nicola La Monica, PhD and Ekambar R. Kandimalla, PhD of Idera Pharmaceuticals.

About Gene Silencing Oligonucleotides

Idera's gene silencing oligonucleotides (GSOs) are single-stranded RNA or DNA constructs with two exposed 3'-ends that are complementary to targeted mRNA sequences of therapeutic interest. In preclinical studies, GSOs have inhibited gene expression in vivo without requiring a delivery enhancement technology. GSOs are covered by issued (#8,431,544) and pending patents around the world.

About Idera Pharmaceuticals, Inc.

Idera Pharmaceuticals is a clinical-stage biopharmaceutical company developing a novel therapeutic approach for the treatment of genetically defined forms of B-cell lymphoma and rare autoimmune diseases. Idera's proprietary technology involves creating novel nucleic acid therapeutics designed to inhibit over-activation of Toll-like Receptors (TLRs). In addition to its TLR programs, Idera is developing gene silencing oligonucleotides (GSOs) that it has created using its proprietary technology to inhibit the production of disease-associated proteins by targeting RNA.

Forward Looking Statements

This press release contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. All statements, other than statements of historical fact, included or incorporated in this press release, including statements regarding the Company's strategy, future operations, collaborations, intellectual property, cash resources, financial position, future revenues, projected costs, prospects, plans, and objectives of management, are forward-looking statements. The words "believes," "anticipates," "estimates," "plans," "expects," "intends," "may," "could," "should," "potential," "likely," "projects," "continue," "will," and "would" and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. Idera cannot guarantee that it will actually achieve the plans, intentions or expectations disclosed in its forward-looking statements and you should not place undue reliance on the Company's forward-looking statements. There are a number of important factors that could cause Idera's actual results to differ materially from those indicated or implied by its forward-looking statements. Factors that may cause such a difference include: whether results obtained in preclinical studies and clinical trials such as the results described in this release will be indicative of the results that will be generated in future clinical trials; whether products based on Idera's technology will advance into or through the clinical trial process on a timely basis or at all and receive approval from the United States Food and Drug Administration or equivalent foreign regulatory agencies; whether, if the Company's products receive approval, they will be successfully distributed and marketed; and such other important factors as are set forth under the caption "Risk Factors" in the Company's Quarterly Report on Form 10-Q for the three months ended March 30, 2014. Although Idera may elect to do so at some point in the future, the Company does not assume any obligation to update any forward-looking statements and it disclaims any intention or obligation to update or revise any forward-looking statement, whether as a result of new information, future events or otherwise.

Source: Idera Pharmaceuticals, Inc.

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