Regulus Presents Positive Preclinical Data Demonstrating that microRNA-21 Plays an Important Role in Alport Syndrome

- New Survival Data Presented at Kidney Week 2013 -
- Alport Syndrome is a Life-Threatening, Genetic Kidney Disease with No Approved Therapy -

LA JOLLA, Calif., Nov. 8, 2013 /PRNewswire/ -- Regulus Therapeutics Inc. (NASDAQ:RGLS), a biopharmaceutical company leading the discovery and development of innovative medicines targeting microRNAs, today announced that positive new preclinical data demonstrating that microRNA-21 (miR-21) plays an important role in Alport Syndrome will be presented at the American Society of Nephrology's Kidney Week 2013 meeting being held November 5-10 in Atlanta, GA.

In a poster presentation titled "*Identification of the Pathologic Role of miR-21 in Alport's Kidney Disease"* on Friday, November 8, 2013 from 10:00 a.m. EST to 12:00 p.m. EST, Regulus and Genzyme, a Sanofi company, presented new preclinical data demonstrating that miR-21 plays an important role in the disease progression of Alport Syndrome in collagen 4A3 deficient mice. The study assessed urine albumin, kidney function, pathology and gene expression in the mice at 4, 6, 9, 12 and 15 weeks of age. Efficacy of an anti-miR-21 candidate was assessed in mice starting at 5 weeks of age. Urine albumin, renal function, kidney pathology and lifespan were used as efficacy endpoints. Treatment with an anti-miR-21 candidate significantly improved renal function, significantly reversed regulated genes and pathways associated with renal pathology, and increased the lifespan of the mice by 20 percent. The poster can be accessed on Regulus' website, http://www.regulusrx.com.

"We are extremely pleased with the results from this study and believe these positive data validate that treatment with an anti-miR-21 candidate may be an important new therapy for patients with Alport Syndrome," said Neil W. Gibson, Ph.D., Chief Scientific Officer at Regulus. "These data bring us one step closer toward the selection of an anti-miR-21 clinical development candidate and we remain excited about the potential to bring this innovative treatment to patients with this devastating disease."

Additionally, microRNA therapeutics will be discussed in two oral presentations at the meeting:

- On Friday, November 8, 2013 at 2:00 p.m. EST, Jeremy Duffield M.D., Ph.D., Regulus' collaborator at the University of Washington, will give an oral presentation titled *" MicroRNAs Are Novel Therapeutic Targets to Treat Kidney Injury and Fibrosis*"; and
- On Saturday, November 9, 2013 at 5:42 p.m. EST, Regulus scientists and representatives from its collaborator at the University of Washington will give an oral presentation titled "*Anti-miR21 Protects Collagen 4A3 Deficient Mice from Progression of Alport Disease by Decreasing Oxidative Stress"*.

About miR-21 and Alport Syndrome

According to the National Institutes of Health, Alport Syndrome occurs in approximately 1 in 50,000 newborns. Alport syndrome is a genetic condition characterized by kidney disease, hearing loss, and eye abnormalities. The kidneys become less able to function as this condition progresses, resulting in end-stage renal disease (ESRD).

Mutations in the COL4A3, COL4A4, and COL4A5 genes cause Alport Syndrome. These genes provide instructions for making one component of a protein called type IV collagen. This protein plays an important role in the kidneys, specifically in structures called glomeruli. Glomeruli are clusters of specialized blood vessels that remove water and waste products from blood and create urine. Mutations in these genes result in abnormalities of the type IV collagen in glomeruli, which prevents the kidneys from properly filtering the blood and allows blood and protein to pass into the urine.

miR-21 is a 22-mer non-coding RNA that negatively regulates gene/networks and has been reported to be up-regulated in fibrotic kidney diseases in both animal models and human patients (Chau, B. N. et al. Sci Transl Med. 2012; Zhong X, et al. (2013) Diabetologia (2013). Previous reports have demonstrated that treatment with an anti-miR-21 significantly attenuates chronic kidney disease progression in a collagen 4A3 deficient mouse model. Regulus' miR-21 therapeutic development program, which is partnered with Sanofi, is currently in preclinical testing for both kidney fibrosis and hepatocellular carcinoma.

About Regulus

Regulus Therapeutics Inc. (*NASDAQ:RGLS*) is a biopharmaceutical company leading the discovery and development of innovative medicines targeting microRNAs. Regulus is uniquely positioned to leverage a mature therapeutic platform that harnesses the oligonucleotide drug discovery and development expertise of Alnylam Pharmaceuticals, Inc. and Isis Pharmaceuticals, Inc., which founded the company. Regulus has a well-balanced

microRNA therapeutic pipeline entering clinical development, an emerging microRNA biomarkers platform to support its therapeutic programs, and a rich intellectual property estate to retain its leadership in the microRNA field. Regulus intends to focus its proprietary efforts on developing microRNA therapeutics for oncology indications and orphan diseases and is currently advancing several programs toward clinical development in oncology, fibrosis and metabolic diseases. Regulus is also developing RG-101, a GalNAc-conjugated anti-miR targeting microRNA-122, for the treatment of chronic hepatitis C virus infection. Regulus' commitment to innovation and its leadership in the microRNA field have enabled the formation of strategic alliances with AstraZeneca, GlaxoSmithKline and Sanofi. In addition, Regulus has formed a research collaboration with Biogen Idec around its emerging microRNA biomarkers platform.

For more information, please visit http://www.regulusrx.com.

Forward-Looking Statements

Statements contained in this press release regarding matters that are not historical facts are "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995, including statements associated with Regulus' expectations regarding future therapeutic and commercial potential of Regulus' business plans, technologies and intellectual property related to microRNA therapeutics being discovered and developed by Regulus. Because such statements are subject to risks and uncertainties, actual results may differ materially from those expressed or implied by such forward-looking statements. Words such as "believes," "anticipates," "plans," "expects," "intends," "will," "goal," "potential" and similar expressions are intended to identify forward-looking statements. These forward-looking statements are based upon Regulus' current expectations and involve assumptions that may never materialize or may prove to be incorrect. Actual results and the timing of events could differ materially from those anticipated in such forward-looking statements as a result of various risks and uncertainties, which include, without limitation, risks associated with the process of discovering, developing and commercializing drugs that are safe and effective for use as human therapeutics, and in the endeavor of building a business around such drugs. These and other risks concerning Regulus' programs are described in additional detail in Regulus' SEC filings. All forward-looking statements contained in this press release speak only as of the date on which they were made. Regulus undertakes no obligation to update such statements to reflect events that occur or circumstances that exist after the date on which they were made.

SOURCE Regulus Therapeutics Inc.

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