



February 29, 2012

Arrowhead Announces Patent Issuance Covering siRNA Inhibitors of HIF-2 α (EPAS1)

PASADENA, Calif. — February 29, 2012 — Arrowhead Research Corporation (NASDAQ: ARWR), a nanomedicine company with development programs in RNA therapeutics and obesity, announced today that the United States Patent and Trademark Office (USPTO) has issued U.S. Patent No. US 8,114,983 B2 entitled, "Compositions and use of EPAS1 inhibitors." Included in the patent are claims directed to siRNA sequences targeting the hypoxia-inducible factor 2 alpha gene (HIF-2 α) or endothelial PAS domain protein 1 (EPAS1), chemical modifications which enhance stability and/or biological activity, compositions, methods, and uses.

"This patent issuance further expands our intellectual property portfolio and is an important milestone in our development of an RNAi therapeutic targeting HIF-2 α ," said Christopher Anzalone, Ph.D., President and CEO of Arrowhead.

HIF-2 α regulates downstream genes including VEGF, EGF, PDGF, TGF- α , and bFGF, which play a role in the progression of a broad range of tumors. In addition, a well-established link exists between the hereditary cancer syndrome von Hippel-Lindau (VHL) disease and HIF-2 α leading to increased susceptibility to clear-cell renal carcinoma (CC-RCC). The American Cancer Society estimates that in 2012 there will be 64,770 new cases and 13,570 deaths attributed to cancers of the kidney and renal pelvis, the overwhelming majority of which are renal cell carcinoma (RCC). RCC has been classified into five subtypes, of which CC-RCC makes up the majority of cases (65%-80%). A significant unmet medical need exists as RCC subjects have a 5-year survival ranging from 5% to 10%, owing largely to the absence of efficacy for radiation therapy and chemotherapy in Stage IV subjects.

"The defined patient population of CC-RCC supports a streamlined clinical strategy, and we also believe that a HIF-2 α targeted drug may have broader activity across multiple cancer types," said Christopher Anzalone, Ph.D. "The genetics of VHL disease and broad regulatory mechanism of HIF-2 α make it an extremely attractive therapeutic target, which has not been accessible by small molecule drugs. We see HIF-2 α as an example of the elegance and power of utilizing the RNAi pathway to address underserved markets and improve patient care."

About HIF-2 α

Hypoxia-inducible factor-2 α (HIF-2 α , also known as EPAS1) is a transcription factor which, when inhibited, has the potential to induce multiple anti-tumor effects. Under the hypoxic conditions found in solid tumors, the HIF-2 α subunit becomes transcriptionally active and binds, together with HIF-1 β , to hypoxia-responsive elements (HREs) of target genes. This leads to the induction of angiogenesis and increased expression of genes that participate in anaerobic metabolism and are associated with increased cell survival, metastasis, and invasion.

Inactivation of the von Hippel-Lindau (VHL) tumor suppressor gene causes a hereditary cancer syndrome called von Hippel-Lindau disease. Patients with the disease exhibit markedly increased susceptibility for development of multiple vascular tumors, including clear-cell renal cell carcinoma (CC-RCC). In these patients, HIF is not degraded, leading to transcription of a variety of downstream genes that play a role in tumor progression, including VEGF, EGF, PDGF, TGF- α , and bFGF. Because these genes are all HIF targets, an RNAi therapeutic that specifically inhibits the HIF-2 α subunit has the potential to induce multiple anti-tumor effects.

About Arrowhead Research Corporation

Arrowhead Research Corporation is a clinical stage nanomedicine company developing innovative therapies at the interface of biology and nanoengineering. Arrowhead's world-class capabilities and intellectual property covering nucleic acid delivery, siRNA chemistry, and tissue targeting allow it to design and develop therapeutic agents for a wide range of diseases. The company's lead products include CALAA-01, an oncology drug candidate based on the gene silencing RNA interference (RNAi) mechanism, and AdipotideTM, an anti-obesity peptide that targets and kills the blood vessels that feed white adipose tissue. Arrowhead is leveraging its proprietary Dynamic PolyConjugateTM (DPC), Liposomal Nanoparticle (LNP), and RONDELTM delivery platforms to support its own pipeline of preclinical and clinical candidates and to secure external partnerships and collaborations with biotech and pharmaceutical companies. For more information, please visit www.arrowheadresearch.com.

Safe Harbor Statement under the Private Securities Litigation Reform Act:

This news release contains forward-looking statements within the meaning of the "safe harbor" provisions of the Private Securities Litigation Reform Act of 1995. These statements are based upon our current expectations and speak only as of the date hereof. Our actual results may differ materially and adversely from those expressed in any forward-looking statements as a result of various factors and uncertainties, including our ability to finance our operations, the future success of our scientific studies, our ability to successfully develop drug candidates, the timing for starting and completing clinical trials, rapid technological change in our markets, and the enforcement of our intellectual property rights. Arrowhead Research Corporation's most recent Annual Report on Form 10-K and subsequent Quarterly Reports on Form 10-Q discuss some of the important risk factors that may affect our business, results of operations and financial condition. We assume no obligation to update or revise forward-looking statements to reflect new events or circumstances.

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