



Arcturus Therapeutics and Synthetic Genomics Announce Strategic Alliance to Develop Next-Generation Vaccines and Therapeutics

October 31, 2017

SAN DIEGO, Oct. 31, 2017 (GLOBE NEWSWIRE) -- Arcturus Therapeutics, Inc., a leading RNA medicines company, and Synthetic Genomics, Inc. announced today that they have entered into a research collaboration and worldwide license agreement to develop self-amplifying RNA-based vaccines and therapeutics in both human and animal health. The collaboration will bring together Arcturus's LUNAR™ lipid-mediated delivery platform with Synthetic Genomics' RNA replicon platform to potentially enable more efficacious and lower cost vaccines and therapeutics.

Under the collaboration, Synthetic Genomics will have exclusive access to LUNAR technology for vaccines and therapeutics, using self-amplifying RNA. Arcturus will receive an upfront cash payment, R&D support, and pre-clinical, development, and sales milestone payments, as well as royalty payments on any future sublicensed products.

"This agreement with Synthetic Genomics is in line with our corporate strategy to form strategic collaborations that leverage our proprietary technologies," said Joseph Payne, president and chief executive officer of Arcturus. "This collaboration gives us the opportunity to apply our LUNAR technology to address unmet needs in both vaccines and therapeutics."

Synthetic Genomics' RNA replicons provide the genetic instructions to the body's own cells to produce ample amounts of protein and unleash a powerful immune response. These replicons carry the RNA code for a self-replication engine as well as multiple antigens that signal for immune response. The self-amplifying RNA-based therapeutic triggers rapid and immediate antigen expression within host cells, stronger T-cell response (including when the host is already infected), and lower dose requirements compared to traditional RNA-based vaccine and therapeutic approaches.

Combining Synthetic Genomics' replicons with Arcturus' LUNAR technology may enable the replicon RNA to avoid degradation and target the tissues and cell types needed to promote a protective immune response or drive expression of therapeutic proteins. In this way, the combination of both platforms may yield preventative and therapeutic treatments for a variety of diseases.

"We have made tremendous progress in programming our replicon RNA system to develop next generation vaccines and therapeutics," said Oliver Fetzer, Ph.D., chief executive officer of Synthetic Genomics. "We are excited to collaborate with Arcturus to explore how their delivery technology can contribute to the shared goal of developing innovative RNA based medicines."

About Synthetic Genomics, Inc.

Synthetic Genomics is programming the operating system of life to create sustainable solutions for humankind's most pressing issues, from the wellbeing of our population to the health of our planet. With an unmatched understanding of how DNA drives the function of cells — the basic biological units of all living organisms — Synthetic Genomics modifies and writes genomes to enable transformative products in the areas of vaccines, medicines, nutrition, and biotechnology research. In addition to designing novel organisms that overcome fundamental hurdles of scientific research and medicine, Synthetic Genomics pursues partnerships with organizations seeking to dramatically improve upon existing products in health care, energy and other sectors. Continuing its legacy of scientific firsts in genomics and synthetic biology, Synthetic Genomics is harnessing the power of nature to improve quality of life. More information is available at syntheticgenomics.com.

About Arcturus Therapeutics, Inc.

Founded in 2013 and based in San Diego, Arcturus Therapeutics, Inc. is an RNA medicines company with enabling technologies — UNA Oligomer chemistry and LUNAR™ lipid-mediated delivery. Arcturus's versatile RNA therapeutics platforms can be applied toward multiple types of RNA medicines including small interfering RNA, messenger RNA, antisense RNA, microRNA and gene editing therapeutics. The company owns LUNAR lipid-mediated delivery and Unlocked Nucleomonomer Agent (UNA) technology including UNA Oligomers, which are covered by its patent portfolio (120 patents and patent applications, issued in the U.S., Europe, Japan, China and other countries). Arcturus's proprietary UNA technology can be used to target individual genes in the human genome, as well as viral genes, and other species for therapeutic purposes. The company's commitment to the development of novel RNA therapeutics has led to partnerships with Janssen Pharmaceuticals, Inc., part of the Janssen Pharmaceutical Companies of Johnson & Johnson, Ultragenyx Pharmaceutical, Inc., Takeda Pharmaceutical Company Limited, and Cystic Fibrosis Foundation Therapeutics Inc. For more information, visit www.ArcturusRx.com, the content of which is not incorporated herein by reference.

On September 27, 2017, Arcturus and Alcobra Ltd. (Alcobra) (NASDAQ:[ADHD](#)) entered into an agreement and plan of merger and reorganization pursuant to which a wholly-owned subsidiary of Alcobra will merge with and into Arcturus, with Arcturus becoming a wholly-owned subsidiary of Alcobra and the surviving corporation of the merger, and the holders of Arcturus outstanding capital stock immediately prior to the merger will receive ordinary shares representing approximately 60% of the outstanding shares of Alcobra. Upon consummation of the transaction, Alcobra's name will be changed to Arcturus Therapeutics, Ltd., and Alcobra will change its ticker symbol to ARCT on NASDAQ.

Forward-looking Statements

This press release contains "forward-looking statements" that involve substantial risks and uncertainties for purposes of the safe harbor provided by the Private Securities Litigation Reform Act of 1995. All statements, other than statements of historical facts, included in this press release regarding strategy, future operations, prospects, plans and objectives of management are forward-looking statements. Examples of such statements include, but are not limited to, statements relating to whether the agreement will result in a successful collaboration or potential products; the structure, timing and completion of the proposed merger transaction; and the combined company's listing on NASDAQ after closing of the proposed merger. You should

not place undue reliance on these forward-looking statements. Such statements are based on management's current expectations and involve risks and uncertainties. Actual results and performance could differ materially from those projected in the forward-looking statements as a result of many factors. Except as otherwise required by law, all parties disclaim any intention or obligation to update or revise any forward-looking statements, which speak only as of the date they were made, whether as a result of new information, future events or circumstances or otherwise.

Additional Information about the Proposed Merger involving Alcobra and Arcturus and Where to Find It

In connection with the previously disclosed proposed merger involving Alcobra and Arcturus, a proxy statement and a proxy card has been furnished to the Securities and Exchange Commission (SEC) and has been mailed to Alcobra's shareholders seeking shareholder approval in connection with the proposed merger transactions. Before making any voting or investment decision, investors and shareholders are urged to read the proxy statement (including any amendments or supplements thereto) and any other relevant documents that Alcobra may furnish to or file with the SEC when they become available because they will contain important information about the proposed merger transactions.

This communication shall not constitute an offer to sell or the solicitation of an offer to sell or the solicitation of an offer to buy any securities, nor shall there be any sale of securities in any jurisdiction in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of any such jurisdiction.

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