Arcturus Therapeutics Announces Allowance of IND & Approval of Clinical Trial Application (CTA) for ARCT-810, a First-in-Class Investigational mRNA Medicine to Treat Ornithine Transcarbamylase Deficiency

April 13, 2020

Clinical Plan Includes Healthy Volunteers in New Zealand and OTC-Deficient Patients Across Several Sites in United States

Investor Conference Call at 4:00 pm ET Today

SAN DIEGO, April 13, 2020 (GLOBE NEWSWIRE) -- Arcturus Therapeutics (the "Company", NASDAQ: ARCT), a leading clinical-stage messenger RNA medicines company focused on the discovery, development and commercialization of therapeutics for rare diseases and vaccines, today announced the acceptance of two clinical trials for its flagship asset ARCT-810, also known as LUNAR-OTC, a first-in-class mRNA therapeutic being developed to treat ornithine transcarbamylase (OTC) deficiency. The Company's Investigational New Drug (IND) application for a Phase 1b study in patients with OTC deficiency was allowed to proceed by the U.S. Food and Drug Administration (FDA), and an additional Clinical Trial Application (CTA) for a Phase 1 study in healthy volunteers was approved by the New Zealand Medicines and Medical Devices Safety Authority (Medsafe). OTC deficiency is a life-threatening genetic disease that results in high blood ammonia levels and can cause seizures, coma, and death in untreated patients. Present standard of care, which comprises low protein diet and drugs to remove toxic ammonia from the body, does not effectively prevent life-threatening spikes of ammonia in many patients. There are no disease modifying therapies approved for OTC deficiency.

"Allowance to proceed into human trials represents a significant milestone for Arcturus as we become a clinical-stage company with a candidate that may provide new hope to patients suffering from ornithine transcarbamylase deficiency," said Joseph Payne, President & CEO of Arcturus Therapeutics.

Dr. Steve Hughes, Chief Development Officer of Arcturus, stated, "Arcturus continues to establish itself as a world leader in the field of intravenously-dosed messenger RNA therapeutics. Our team looks forward to ushering ARCT-810 efficiently through the clinic and to providing OTC-deficient patients access to this potentially disease-modifying messenger RNA therapy."

The primary endpoint for both studies includes evaluation of safety and tolerability. Multiple biomarkers, including ureagenesis assay, plasma OTC activity, plasma ammonia and orotic acid in the urine, are being evaluated as exploratory endpoints. The program plans to enroll up to 30 healthy volunteers in the Auckland Clinical Studies (ACS) site in New Zealand, and up to 12 OTC-deficient patients recruited across several sites in the U.S. The first healthy subjects are expected to be enrolled in New Zealand soon, with the first patients enrolled under the IND in Q3 or Q4, depending on the status of SARS-CoV-2 infections in the U.S.

ARCT-810, is a low-dose, systemically administered, investigational mRNA medicine that utilizes Arcturus' novel messenger RNA construct and proprietary LUNAR® delivery system to deliver OTC messenger RNA to liver cells. In 2019, the FDA granted Orphan Drug Designation to the drug substance of ARCT-810 for the treatment of the rare disease OTC deficiency supported by the promising results of preclinical studies. Expression of OTC enzyme in the liver can potentially restore urea cycle activity to detoxify ammonia, thereby potentially preventing neurological damage and removing the need for liver transplantation.

The GMP manufacturing campaign for ARCT-810 is complete, with drug product amounts sufficient to support early clinical trials. ARCT-810 batches were manufactured utilizing Arcturus' proprietary processes for both mRNA drug substance and LUNAR® formulated drug product.

Investor Conference Call: Monday April 13th @ 4:00 PM ET

Today's call will provide additional detail pertaining to the ARCT-810 clinical plan, along with additional information regarding the Company's COVID-19 vaccine program.

Domestic:	877-407-0784
International:	201-689-8560
Conference ID:	13702129
Webcast:	http://public.viavid.com/index.php?id=139168

About ARCT-810

ARCT-810, Arcturus' first development candidate, represents a novel approach to treat ornithine transcarbamylase deficiency. ARCT-810 is based on Arcturus' mRNA design construct and proprietary manufacturing process. ARCT-810 also utilizes Arcturus' extensive and propriety lipid library and employs the Company's LUNAR® delivery platform to deliver OTC mRNA to hepatocytes. ARCT-810 is an investigational mRNA medicine designed to enable OTC-deficient patients to naturally produce healthy functional OTC enzyme in their own liver cells. Replacing the deficient OTC protein has the potential to restore activity of the urea cycle pathway, resulting in reduced plasma ammonia and urinary orotate concentrations.

About Ornithine Transcarbamylase Deficiency

Ornithine transcarbamylase (OTC) deficiency is the most common urea cycle disorder. Urea cycle disorders are a group of inherited metabolic disorders that make it difficult for affected patients to remove toxic waste products as proteins are digested. OTC deficiency is caused by mutations in

the OTC gene which leads to a non-functional or deficient OTC enzyme. OTC is a critical enzyme in the urea cycle, which takes place in liver cells, and together with the other enzymes in the urea cycle converts ammonia to urea. This conversion does not occur properly in patients with OTC deficiency and ammonia accumulates in their blood, acting as a neurotoxin and liver toxin. A lack of the OTC enzyme in liver cells results in high blood ammonia levels and can cause seizures, coma, and death in untreated patients. OTC deficiency is an inherited disease that can cause developmental problems, seizures and death in newborn babies. It is an X-linked disorder, so is more common in males. Patients with less severe symptoms may present later in life, as adults. There is currently no cure for OTC deficiency, apart from liver transplant. However, this treatment comes with significant risk of complications such as organ rejection, and transplant recipients must take immunosuppressant drugs for the rest of their lives. Current standard of care for OTC patients is a low-protein diet and ammonia scavengers to try and prevent patients from accumulating ammonia. These treatments do not address the underlying cause of disease.

About Arcturus Therapeutics

Founded in 2013 and based in San Diego, California, Arcturus Therapeutics Holdings Inc. (Nasdaq: ARCT) is a clinical-stage mRNA medicines and vaccines company with enabling technologies (i) LUNAR® lipid-mediated delivery, (ii) STARR™ mRNA Technology and (iii) mRNA drug substance along with drug product manufacturing expertise. Arcturus' diverse pipeline of RNA therapeutic candidates includes programs to potentially treat Ornithine Transcarbamylase (OTC) Deficiency, Cystic Fibrosis, Glycogen Storage Disease Type 3, Hepatitis B, non-alcoholic steatohepatitis (NASH) and a self-replicating mRNA vaccine for SARS-CoV-2. Arcturus' versatile RNA therapeutics platforms can be applied toward multiple types of nucleic acid medicines including messenger RNA, small interfering RNA, replicon RNA, antisense RNA, microRNA, DNA, and gene editing therapeutics. Arcturus' technologies are covered by its extensive patent portfolio (187 patents and patent applications, issued in the U.S., Europe, Japan, China and other countries). Arcturus' commitment to the development of novel RNA therapeutics has led to collaborations with Janssen Pharmaceuticals, Inc., part of the Janssen Pharmaceutical Companies of Johnson & Johnson, Ultragenyx Pharmaceutical, Inc., Takeda Pharmaceutical Company Limited, CureVac AG, Synthetic Genomics Inc., Duke-NUS, and the Cystic Fibrosis Foundation. For more information visit www.Arcturusrx.com

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. Any statements, other than statements of historical fact included in this press release, including those regarding strategy, future operations, collaborations, the likelihood of success efficacy or safety of ARCT-810, the ability to initiate or complete preclinical and clinical development programs, including as a result of the COVID-19 pandemic, the supply and delivery of any product or substance, the likelihood that preclinical data will be predictive of clinical data, and the ability to enroll subjects therein are forward-looking statements. Arcturus may not actually achieve the plans, carry out the intentions or meet the expectations or projections disclosed in any forward-looking statements such as the foregoing and you should not place undue reliance on such forward-looking statements. Such statements are based on management's current expectations and involve risks and uncertainties, including those discussed under the heading "Risk Factors" in Arcturus' Annual Report on Form 10-K for the fiscal year ended December 31, 2019, filed with the SEC on March 16, 2020 and in subsequent filings with, or submissions to, the SEC. Except as otherwise required by law, Arcturus disclaims 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.

Contact

Arcturus Therapeutics
Neda Safarzadeh
(858) 900-2682
IR@ArcturusRx.com

LifeSci Advisors LLC
Michael Wood
(646) 597-6983
mwood@lifesciadvisors.com

Source: Arcturus Therapeutics Holdings Inc.