MEDERA RECEIVES FDA CLEARANCE FOR A FIRST-IN-HUMAN GENE THERAPY TRIAL FOR HEART FAILURE WITH PRESERVED EJECTION FRACTION

BOSTON, MASSACHUSETTS, UNITED STATES, November 18, 2022 /EINPresswire.com/ --

- Heart failure is a global pandemic with an estimated 64.3 million cases worldwide
- Heart failure with preserved ejection fraction (HFpEF) accounts for half of heart failure cases, but has limited disease-modifying therapeutics
- With an IND from FDA, Sardocor has initiated Phase 1/2A clinical trial for SRD-001, an adenovirus associated virus (AAV)-mediated treatment, as first-in-human gene therapy for HFpEF

Sardocor Corp., the clinical-stage gene therapy subsidiary of Medera with a broad pipeline of adeno-associated virus (AAV)-based treatments for cardiovascular diseases, announces that the US Food & Drug Administration (FDA) has cleared the Modulation of SERCA2A In Cardiomyopathy (MUSIC)- Heart Failure with Preserved Ejection Fraction (HFpEF) clinical trial for initiation. MUSIC-HFpEF1 will be the first-ever trial using gene therapy to modify the pathophysiology of HFpEF, a major problem in approximately half of 64.3 million heart failure cases worldwide.[1] HFpEF patients suffer from depressed ventricular relaxation and associated dysfunctional hemodynamics.

Novoheart, another subsidiary of Medera focusing on the use of mini-Heart technology for disease modeling and drug discovery, recently announced jointly with AstraZeneca the successful generation of the first bioengineered HFpEF human heart models which reproduce key disease characteristics.[2] By comparing normal and HFpEF heart models, Novoheart identified the downregulation of sarcoplasmic reticulum calcium ATPase pump (SERCA2a), the protein pump that is instrumental in the absorption of cytosolic calcium during ventricular relaxation, as the major cause for calcium-handling defects in HFpEF; furthermore, AAV-mediated overexpression of SERCA2a in HFpEF human heart models reverses the disease phenotypes such as relaxation defects. Consistently, preclinical animal models have demonstrated enhanced relaxation via SERCA2a activation. Indeed, SERCA-2a has been shown to be downregulated universally in all forms of heart failure.

SRD-001 is an AAV-based gene therapy that is directly delivered to cardiac ventricular muscle cells via Sardocor's proprietary intracoronary infusion system for increasing the protein

expression and functional activity of SERCA2a.

MUSIC-HFpEF1 will enroll patients with HFpEF confirmed by rigorous exercise hemodynamics and gas exchange in an open-label, dose-escalation, 52-week Phase 1b/2a clinical trial of SRD-001, administered via our proprietary one-time intracoronary infusion technology. While the initial primary goal is to assess safety following intra-coronary SRD-001 infusion, clinical efficacy will also be assessed with cutting-edge approaches.

“The unique ability of SRD-001 to enhance ventricular relaxation, a critical mechanism of the diastolic dysfunction known to commonly occur in the stiff hearts of HFpEF patients, presents a novel, exciting and physiologically-based approach to a condition the treatment of which has eluded researchers for decades. In MUSIC-HFpEF1, efficacy assessment is based on rigorous screening and follow-up of potential subjects with exercise hemodynamics and gas exchange as well as echocardiographic, clinical and biomarker metrics in this open-label study.” added Jonathan Plehn, MD, Chief Medical Officer of Sardocor.

“This clinical trial will serve to validate the large body of work that has implicated deficiency of SERCA2a in HFpEF and is a landmark achievement for Medera/Sardocor which is committed to treating HFpEF patients with a single infusion of SRD-001. The initiation of the First-in-Human MUSIC-HFpEF1 trial of SRD-001 also extends Sardocor’s cardiac gene therapy portfolio to a disease state with a large unmet need,” said Roger Hajjar, MD, Scientific Co-Founder of Medera and Sardocor.

“Given the central importance of SERCA2a in multiple cardiovascular diseases, we are also investigating the use of SRD-001 for treating other indications,” said Ronald Li, PhD, CEO and Founder of Medera.

About HFpEF

Heart failure (HF) is a global pandemic with an increasing trend in prevalence.[3] The annual global economic burden of HF is estimated at over US$100 billion.[4] Accounting for 50% or greater of the overall HF population, heart failure with preserved ejection fraction (HFpEF) is an age-related condition that has become far more prevalent in recent years.[1] This is partly due to an increasing dissemination of knowledge about the syndrome leading to greater identification of the condition, but also due to changes in lifestyle leading to deleterious metabolic effects on the cardiac myocytes.[1] Individuals affected by HFpEF experience similar degrees of morbidity and mortality to that of patients with HF with reduced ejection fraction (HFrEF).[5] Despite the growing epidemic of this emerging syndrome, HFpEF-focused interventional trials have had little success except for the use of sacubitril-valsartan (Entresto™)[6] and the sodium glucose transporter-2 (SGLT-2) inhibitor empagliflozin (Jardiance™)[7] for reducing cardiovascular mortality and heart failure hospitalization. However, these agents are not disease-modifying[6] [7] and there is a critical need for therapeutic interventions that target the abnormal physiological mechanisms involved in HFpEF.

About Medera, Novoheart and Sardocor

Founded in 2014, Medera is a clinical-stage company dedicated to next-generation cell and gene therapies for difficult-to-treat and incurable diseases. Medera's preclinical and clinical programs target a range of cardiac, vascular and muscular indications, including Heart Failure with preserved Ejection Fraction (HFpEF), Duchenne Muscular Dystrophy and Pulmonary Hypertension, etc. Medera operates via its 2 subsidiaries: 1) Novoheart is responsible for Disease Modelling & Drug Discovery using our proprietary, award-winning mini-Heart Technology, which offers a range of bioengineered human heart constructs including the world's first human heart-in-a-jar as healthy and diseased human hearts for testing toxicity and efficacy. This platform enables us to uniquely model human-specific diseases and discover therapeutic candidates all in the context of human cells and tissues, free from species-specific differences. Before privatisation by Medera, Novoheart was dually listed on the Toronto Stock Exchange and Frankfurt Stock Exchange. 2) Sardocor is dedicated to the clinical development of novel therapies. Building upon Novoheart's bioengineered human tissue-based assays for disease modelling and drug discovery, Sardocor aspires to create the shortest regulatory path to the clinic for advancing effective next-generation cell & gene therapy.

For more information, please visit:
https://www.medera.bio
https://www.medera.bio/programs/#sardocor

For media enquiries/interviews, please contact us at:
media@medera.bio

[1] Curr Heart Fail Rep. 2013 Dec; 10(4): 401–410
[2] AstraZeneca and Medera's Novoheart develop first human models of heart failure. PMLive
[3] Lancet. 2018; 392:1789-1858
[4] Int J Cardiol. 2014; 171(3):368-76 J Am Coll Cardiol. 2017 Nov, 70 (20) 2476–2486
[5] Am Health Drug Benefits. 2015 Sep; 8(6): 330–334
[6] Eur J Heart. 2020 Jan;22(1):126-135

info@medera.bio
Medera, Inc.
(949) 373 5126
email us here

in today's world. Please see our Editorial Guidelines for more information.