Press Release

Cardior Pharmaceuticals: Pioneering Study Confirms Pivotal Role of Antisense microRNA Approach in the Treatment of Pathologic Hypertrophy of the Heart

- *First-ever data on therapeutic miR-132 inhibition in a large animal model of nonischemic heart failure with cardiac hypertrophy and fibrosis*
- *Peer-reviewed publication in the* Journal of the American College of Cardiology

Hanover, Germany, June 24, 2021 - Cardior Pharmaceuticals GmbH, a clinical-stage biotech company focused on the development of non-coding RNA (ncRNA) based therapeutics for patients with cardiovascular diseases, announced today that results from a recent peer-reviewed study underlining the Company´s pioneering approach in the treatment of cardiac diseases were published in the *Journal of the American College of Cardiology.* The data confirm that the inhibition of the naturally occurring miR-132 microRNA via an antisense microRNA can prevent pathological cardiac remodeling in hypertrophic heart disease.

For the study, the international team of researchers developed a novel, large animal model of nonischemic heart failure with cardiac hypertrophy and fibrosis, replicating the clinical picture of left ventricular pressure overload due to aortic stenosis or - more broadly - hypertension.

In the study, the antimiR-132 treatment strongly attenuated excessive cardiac hypertrophy and led to an improvement of capillary density and myocardial function.

"This is the first study worldwide to examine therapeutic miR-132 inhibition in a large animal model of nonischemic heart failure," said Prof. Thomas Thum, CSO of Cardior Pharmaceuticals and co-author of the study. "We could demonstrate that miR-132 inhibition improves cardiac function and constitutes an efficient treatment option to prevent the conversion of physiologic to pathologic hypertrophy often observed in patients with heart failure of nonischemic origin. The study is adding further potential therapeutic options for our lead compound CDR132L."

"We are very pleased that this study is in line with the preclinical and clinical results of our anti-miRNA-132 lead compound CDR132L," said Dr. Claudia Ulbrich, CEO of Cardior. "The publication once again demonstrates the great potential of this first-ever RNA-therapeutic addressing the root cause of life-threatening cardiovascular diseases. We are now very much looking forward to our clinical Phase II trial with CDR132L, which will start later this year."

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About CDR132L

CDR132L is an antisense oligonucleotide developed by Cardior Pharmaceuticals inhibiting the microRNA-132 (miR-132), a non-coding microRNA that regulates cardiac hypertrophy and remodeling in cardiomyocytes by targeting well-defined pathways.

miR-132 is a regulatory master switch to control cardiac function and a promising, causal therapeutic target in heart failure therapy. Expression of miR-132 is increased in various pathological cardiac conditions in both animals and humans, and previous preclinical studies have shown that miR-132 is essential for driving the pathological growth of cardiomyocytes.

In a randomized, double-blind, placebo-controlled, dose-escalating Phase Ib study CDR132L showed excellent safety and tolerability, linear dose-dependent pharmacokinetic (PK) and promising pharmacodynamic (PD) properties in heart failure (HF) patients on guideline directed medication. The study design combined dose escalation with repeat dosing (day 1 and 28) at 4 dose levels. 28 patients received CDR132L or placebo (5:2 randomized in 4 cohorts) via short-term (15 min.) intravenous infusions.

About Cardior Pharmaceuticals

Cardior Pharmaceuticals is a clinical-stage, privately held German biopharmaceutical company pioneering the development of curative and preventive heart failure therapeutics based on non-coding RNAs (ncRNAs). Cardior's therapeutic approach is using distinctive ncRNA signatures driving the molecular reprogramming that causes maladaptive remodeling and heart failure. Drug candidates developed by Cardior represent first-in-class ncRNA therapeutics and diagnostics for patients with myocardial infarction and various forms of heart failure. Founded in 2016 based on the work of cardiologist Prof. Dr. Dr. Thomas Thum of Hannover Medical School, the Company is funded by a consortium of leading investors: LSP, BioMedPartners, Boehringer Ingelheim Venture Fund (BIVF), Bristol-Myers Squibb (BMS) and High-Tech Gründerfonds (HTGF).

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