REGeRNA is a European Commission-funded research initiative that convenes partners from across Europe who will work together to identify a solution to heart failure.

Using existing technologies already validated in other indications, REGeRNA aims to accelerate the development of a drug treatment intended to reactivate naturally present mechanisms of cardiomyocyte proliferation which are switched off after birth.

The treatment will stimulate the regeneration of damaged heart muscle and its subsequent functional recovery.

CONCEPT

The research’s central idea is that the loss of cardiomyocytes in damaged regions can be addressed by leveraging advances in synthetic mRNAs and lipid nanoparticle (LNP)-based carriers.

ANTICIPATED IMPACT

INNOVATIVE, SAFE AND EFFICIENT SOLUTION
for patients who are not responsive to conventional therapies

IMPROVED CARDIAC FUNCTION
through promotion of endogenous cardiomyocyte proliferation

mRNA-BASED TECHNOLOGIES
deployed beyond the vaccine field

CUTTING EDGE RESULTS FOR THE SCIENTIFIC COMMUNITY

Want to know more? www.regerna.eu

OBJECTIVES

1. Identify and develop new mRNAs encoding proteins that will stimulate existing signalling pathways associated with the regeneration of heart muscle.

2. Package this mRNA into lipid nanoparticles (LNP) which will be carried specifically in cardiomyocytes and trigger the machinery underlying the regeneration of heart muscle.

3. Demonstrate the new mRNA-triggered cardiomyocytes integrate within the heart muscle and improve its pumping capacity without causing adverse effects such as rhythm disturbances.

4. Undertake a Quality-by-Design strategy to maximise an efficient translation from pre-clinical testing to clinical trials at the end of the process.

LEVERAGING THE HEART’S NATURAL REGENERATION MECHANISMS FOR TREATING HEART FAILURE

Scientific Coordinator
Prof. Philippe Menasché
Dept of Cardiovascular Surgery & Inserm, U970 PARCC, Regenerative Therapies for Cardiac and Vascular Diseases
Hôpital Européen Georges Pompidou
Paris, France

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