Direct Cardiac Reprogramming for Regenerative Medicine

Grant Award Details

Direct Cardiac Reprogramming for Regenerative Medicine

Grant Type: Quest - Discovery Stage Research Projects

Grant Number: DISC2-09596

Project Objective: To develop a gene therapy product to deliver cardiac reprogramming factors in situ into cardiac fibroblasts for regeneration of new myocardium.

Investigator:

Name:	Deepak Srivastava
Institution:	Gladstone Institutes, J. David
Type:	PI

Disease Focus: Heart Disease

Human Stem Cell Use: Directly Reprogrammed Cell

Award Value: $2,400,048

Status: Active

Grant Application Details

Application Title: Direct Cardiac Reprogramming for Regenerative Medicine

Public Abstract:

Research Objective

To develop a gene therapy product to deliver cardiac reprogramming factors into the heart for regeneration of new heart muscle.

Impact

The proposed candidate would regenerate heart muscle for the 23 million adult and pediatric patients with heart failure, for whom there are currently no disease-modifying therapeutic approaches.

Major Proposed Activities

- Successful conversion of support cells in the heart into new muscle in mice using two viral vectors for gene delivery.
- Successful conversion of support cells in the heart into new muscle in pigs using two viral vectors after cardiac injury.
- Discovery to allow use of a single viral vector as the therapeutic product for converting human cardiac support cells into cardiac muscle-like cells.
- Successful conversion of support cells in the mouse heart into new muscle using a single viral vector for gene delivery.
- Successful conversion of support cells in the pig heart into new muscle using a single viral vector for gene delivery.
- Establish safety profile of therapeutic for in vivo cardiac reprogramming in the pig model.

Statement of Benefit to California:

The proposed research will benefit California by promoting a potential novel therapy for the estimated 500,000 Californians who suffer from heart failure, including adults and children. Furthermore, California will benefit from reduced medical costs if this therapy is successful, as complications related to heart failure are the number one cause of hospitalizations. Finally, California will benefit from the development of this technology as part of the growing biotechnology economy.

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