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**Multipotent Cardiovascular Progenitor Regeneration of the Myocardium after MI**

**Grant Award Details**

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Multipotent Cardiovascular Progenitor Regeneration of the Myocardium after MI

**Grant Type:** Quest - Discovery Stage Research Projects

**Grant Number:** DISC2-10110

**Project Objective:** To evaluate the retention and distribution of MCPs transplanted into the heart after MI, and determine the safety and efficacy of MCP therapy for improving LV function and survival after ischemic injury to the heart.

**Investigator:**

<b>Name:</b>	Mark Mercola
<b>Institution:</b>	Stanford University
<b>Type:</b>	PI

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**Disease Focus:** Heart Disease

**Human Stem Cell Use:** iPS Cell

**Award Value:** \$1,809,234

**Status:** Active

**Grant Application Details**

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**Application Title:** Multipotent Cardiovascular Progenitor Regeneration of the Myocardium after MI

**Public Abstract:****Research Objective**

We developed technology to reproducibly prepare large numbers of bonafide cardiac progenitor cells from patient iPSCs. We propose the first test of these cells as a therapy for myocardial infarction.

**Impact**

Heart failure resulting from myocardial infarction is responsible for 13% of human mortality (WHO statistic). This proposed therapy is to restore the loss of heart cells that lead to heart failure.

**Major Proposed Activities**

- Perform cell labeling, biobanking and in vitro characterization of Multipotent Cardiovascular Progenitor cells (MCPs), including quality control of batches for subsequent activities.
- Phase 1: Deliver the Multipotent Cardiovascular Progenitor cells (MCPs) into pig hearts after infarction/reperfusion. Use <sup>19</sup>F magnetic resonance imaging (MRI) to measure retention and distribution.
- Phase 2: Using the conditions determined in Phase 1, monitor animals for 3 months to assess safety & efficacy for improving heart function & survival. Histology at termination to assess regeneration.
- Summarize the results into a preclinical package, in anticipation of translating the research into a cell-based therapy for myocardial infarction

**Statement of Benefit to California:**

Heart disease accounts for 25% of deaths in California, making it the #1 cause of death (2014, American Heart Association). Over 3% of Californians have had a heart attack, but with 60% obesity this number will likely increase. The research investigates a curative therapy based on cell transplantation of bonafide cardiac progenitors. Benefits likely to accrue therefore are 1) improved health of our population, and 2) stimulation of biotechnology to produce, market and deliver the therapeutic.

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