iPS Glial Therapy for White Matter Stroke and Vascular Dementia

Grant Award Details

iPS Glial Therapy for White Matter Stroke and Vascular Dementia

Grant Type: Quest - Discovery Stage Research Projects

Grant Number: DISC2-10714

Project Objective: The studies will develop an iPS-glial enriched progenitor cell line (iPS-GEPs) for brain repair in white matter stroke.

Investigator:

Name:	Stanley Carmichael
Institution:	University of California, Los Angeles
Type:	PI

Disease Focus: Neurological Disorders, Stroke

Human Stem Cell Use: iPS Cell

Cell Line Generation: iPS Cell

Award Value: $2,096,095

Status: Active

Grant Application Details

Application Title: iPS Glial Therapy for White Matter Stroke and Vascular Dementia

Public Abstract:

Research Objective

This cell line will target recovery in ischemic white disease, a progressive dementing condition with no current therapy by developing a new stem line, iPS-glial enriched progenitors (iPS-GEPs).

Impact

This cell line will target tissue repair and recovery in ischemic white disease/vascular dementia, a chronically progressive and dementing condition with no current therapy.

Major Proposed Activities

- Efficacy. 1) Determine most efficacious iPS-GEP line; 2) Test efficacy in chronic white matter stroke; 3) Test efficacy for transplant location; 4) Test dose response; 5) Test efficacy in aged mice
- Mechanism of Action. 1) Determine cell intrinsic vs extrinsic effects; 2) Identify expression profile of iPS-GEPs during tissue repair; 3) Identify molecular systems that produce recovery of function
- Assay Development.: 1) Qualify identity, purity, safety and stability assays for iPS-GEPs
- Biomarker Development. 1) Develop structural MRI biomarker of iPS-GEP repair of damaged white matter; 2) Develop resting state MRI biomarker of enhanced brain connectivity

Statement of Benefit to California:

Stroke is the leading cause of adult disability. White matter stroke occurs in the connecting areas of the brain. This entity is up to 30% of all stroke and the second leading cause of dementia. There is no therapy for this disease. White matter stroke damages the specialized cells that support brain connections, glial cells. The proposed studies develop a specifically tailored stem cell therapy for tissue repair in white matter stroke, an induced pluripotent glia cell.

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