
Blood Brain Barrier (BBB)-on-Chip: Development and validation of a novel iPS-based microfluidic model of the human BBB

Grant Award Details

Blood Brain Barrier (BBB)-on-Chip: Development and validation of a novel iPS-based microfluidic model of the human BBB

Grant Type: Inception - Discovery Stage Research Projects

Grant Number: DISC1-08800

Project Objective: To develop and systematically characterize a novel model of the human BBB using a microfluidic device (chip) and cells derived from induced pluripotent stem cells (iPSCs).

Investigator:

Name:	Clive Svendsen
Institution:	Cedars-Sinai Medical Center
Type:	PI

Disease Focus: Neurological Disorders

Human Stem Cell Use: iPS Cell

Cell Line Generation: iPS Cell

Award Value: \$241,992

Status: Closed

Progress Reports

Reporting Period: Year 1

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Grant Application Details

Application Title: Blood Brain Barrier (BBB)-on-Chip: Development and validation of a novel iPS-based microfluidic model of the human BBB

Public Abstract:**Research Objective**

to develop and systematically characterize a novel model of the human BBB using a microfluidic device (chip) and cells derived from induced pluripotent stem cells (iPSCs).

Impact

The success of the proposed research will provide a novel, highly attractive model for screening of molecules to treat neurological disorders and for personalized medicine in the future

Major Proposed Activities

- To develop a personalized model of the BBB-on-Chip using iPSC-derived brain microvascular endothelial cells (BMECs) and iPSC-derived neurons and astrocytes
- To perform a detailed profiling of small molecules crossing (or not) the human BBB from circulating blood using Mass Spectrometry
- To conduct a secretome profiling of peptides and proteins that are transported across the BBB with/without iPSC-derived neurons and astrocytes

Statement of Benefit to California:

The state of California and its citizens will benefit from this project in a financial level as conducting this project at Cedars-Sinai will provide more job opportunities. Moreover, Emulate Inc. is planning to open a branch in the wet cost. Our successful collaboration will strongly promote California as their destination. Moreover, the Californian citizens will benefit from the potential development of new therapies for neurological disorders made available by this novel model

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