
Generation of human airway stem cells by direct transcriptional reprogramming for disease modeling and regeneration

Grant Award Details

Generation of human airway stem cells by direct transcriptional reprogramming for disease modeling and regeneration

Grant Type: Inception - Discovery Stage Research Projects

Grant Number: DISC1-10475

Project Objective: The objective is to generate human induced airway stem cells by expressing airway transcription factors in fibroblasts. These cells will then be differentiated to airway epithelium to enable modeling of lung diseases and therapeutic discovery

Investigator:

Name:	Semil Choksi
Institution:	University of California, San Francisco
Type:	PI

Disease Focus: Respiratory Disorders

Human Stem Cell Use: Directly Reprogrammed Cell

Cell Line Generation: Directly Reprogrammed Cell

Award Value: \$238,408

Status: Active

Grant Application Details

Application Title: Generation of human airway stem cells by direct transcriptional reprogramming for disease modeling and regeneration

Public Abstract:**Research Objective**

We will generate human airway stem cells by direct transcriptional reprogramming of fibroblasts. We will use these induced airway stem cells to model motile cilia disease in a dish.

Impact

Generating airway stem cells through reprogramming will create a scalable and editable cell line from which we can derive airway epithelium, thus enabling airway disease modeling and drug screening.

Major Proposed Activities

- Aim 1: Direct reprogramming of fibroblasts into human airway stem cells
- Aim 2: Modeling motile cilia disease in reprogrammed human airway stem cells

Statement of Benefit to California:

More than 10% of Californians suffer from lung diseases such as COPD or asthma. Our proposed studies will attempt to directly convert skin cells into lung stem cells, facilitating the modeling of airway diseases in a dish. Disease modeling will lead to a deeper understanding of the cellular basis of airway diseases which could lead to novel drugs and regenerative therapies in the future, benefiting the people of California and beyond.

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