
Optimizing self-renewal signaling kinetics to stabilize ex vivo hematopoietic stem cell expansion

Grant Award Details

Optimizing self-renewal signaling kinetics to stabilize ex vivo hematopoietic stem cell expansion

Grant Type: Inception - Discovery Stage Research Projects

Grant Number: DISC1-10555

Project Objective: The objective is to develop stable, ex vivo culture conditions for mouse and human hematopoietic stem cells by modulating TPO signaling

Investigator:

Name:	Hiromitsu Nakauchi
Institution:	Stanford University
Type:	PI

Disease Focus: Blood Disorders

Human Stem Cell Use: Adult Stem Cell

Award Value: \$210,906

Status: Closed

Grant Application Details

Application Title: Optimizing self-renewal signaling kinetics to stabilize ex vivo hematopoietic stem cell expansion

Public Abstract: **Research Objective**

We aim to develop conditions for stable expansion of blood stem cells outside of the body

Impact

Blood stem cells are a rare but necessary cell type for curative bone marrow transplantation and related gene therapies. Stable blood stem cell expansion will increase therapy availability and success

Major Proposed Activities

- Validate a fully defined all-recombinant protein culture system for long-term HSC expansion
- Develop pharmacological strategies to provide robust ex vivo human HSC maintenance and expansion

Statement of Benefit to California: Blood stem cell availability is a major bottleneck in bone marrow transplantation, a curative therapy for numerous blood diseases. Blood stem cells currently cannot be stably maintained outside the body. Stable culture conditions would therefore increase blood stem cell availability, and improve accessibility to clinical bone marrow transplantation and related gene therapies. This research will ultimately improve bone marrow transplantation and related gene therapies for patients in California.

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