
A novel druggable mechanism to safeguard stem cell genome

Grant Award Details

A novel druggable mechanism to safeguard stem cell genome

Grant Type: Basic Biology V

Grant Number: RB5-07285

Project Objective: To characterize PTM, a small synthetic molecule that protects pluripotent stem cells from genomic damage.

Investigator:

Name:	Sheng Ding
Institution:	Gladstone Institutes, J. David
Type:	PI

Human Stem Cell Use: Adult Stem Cell, Embryonic Stem Cell

Award Value: \$1,294,495

Status: Closed

Progress Reports

Reporting Period: Year 1

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Reporting Period: Year 3

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Grant Application Details

Application Title: A novel druggable mechanism to safeguard stem cell genome

Public Abstract: Safeguarding the genome is essential for cells' proper functions, and more importantly for safe and efficacious applications involving pluripotent stem cells and adult stem cells. However, how pluripotent or somatic stem cells maintain genome integrity during self-renewal, differentiation, and reprogramming is still largely unknown. We recently identified a small molecule drug that exhibits unprecedented abilities in maintaining and enhancing genome stability of pluripotent stem cells under stress conditions. The proposed studies aim to uncover the small molecule's mechanisms and utilities in human pluripotent and adult stem cells. These studies will lead to improved understanding to safeguard stem cell genome, provide a safer and more robust approach in stem cell ex vivo expansion, and allow new therapeutic development toward treating diseases and aging associated with genome instability as well as promoting in vivo stem cell protection.

Statement of Benefit to California: The proposed studies will lead to improved understanding to safeguard stem cell genome, provide a safer and more robust approach in stem cell ex vivo expansion, and allow new therapeutic development toward treating diseases and aging associated with genome instability as well as promoting in vivo stem cell protection.

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