
A Novel Approach to Eradicate Cancer Stem Cells

Grant Award Details

A Novel Approach to Eradicate Cancer Stem Cells

Grant Type: Quest - Discovery Stage Research Projects

Grant Number: DISC2-10107-A

Project Objective: To identify a small molecule SUMOylation inhibitor for eradicating colorectal cancer stem cells

Investigator:

Name:	Yuan Chen
Institution:	City of Hope, Beckman Research Institute
Type:	PI

Disease Focus: Cancer, Colon Cancer, Solid Tumors

Human Stem Cell Use: Cancer Stem Cell

Award Value: \$1,539,935

Status: Closed

Progress Reports

Reporting Period: Year 2 NCE Partial

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Grant Application Details

Application Title: A Novel Approach to Eradicate Cancer Stem Cells

Public Abstract:**Research Objective**

The outcome is a therapeutic candidate ready for Investigational New Drug (IND)-enabling studies to target a central hub of stemness pathways of cancer stem cells (CSC) maintenance and self-renewal

Impact

To date, the majority of metastatic cancers remain incurable, because CSCs that can grow new tumors evades current therapy. The proposed studies aim to eradicate CSCs to achieve a cure.

Major Proposed Activities

- Investigate the effects of therapeutic candidates on colorectal CSCs in cellular and patient-derived xenograft (PDX) models
- Confirm the direct effects of candidate therapeutics in isolated colorectal CSCs and compare the effects with other experimental agents that inhibit other pathways that affect CSCs
- Define the mechanism of how candidate therapeutics inhibit CSCs
- Continue to fine tune candidate therapeutics to improve specificity and potency and address issues of the current lead compounds by medicinal chemistry
- Investigate toxicity, eliminate toxic compounds, and define the safety profile of the lead candidate therapeutics
- Identify the optimal candidate for IND-enabling studies and define target product profile

Statement of Benefit to California:

According to the California Cancer Registry, more than 19 million Californians are at risk for cancer, and nearly 800,000 are living with active cancer. To date, the majority of metastatic cancers remain incurable. Metastasis is driven by cancer stem cells (CSCs), which are resistant to currently available treatments. We will develop an effective new drug that targets and eradicates CSCs, to ultimately increase the cancer cure rate, reduce medical costs, and improve outcomes for Californians.

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