Targeting Cancer Stem Cells through Interference with GTPase-mediated Niche Adhesion

Published date: Dec. 6, 2017

Technology description

A cancer treatment strategy that uses specific GTPase inhibitors.
Selective targeting of tumor and tumor stem cell adhesion mechanisms through GTPase interference allows these cells to be more readily killed by chemotherapy treatments. The GTPase inhibitor causes a reduction in ovarian tumor cell homing to the omentum (a privileged niche in the peritoneum), and researchers are testing the impact on bone marrow niche homing. This new approach will increase the efficacy of chemotherapy treatment and reduce the risk of cancer relapse.

Background

Targeting cancer stem cells with chemotherapy provides an opportunity for improved patient outcomes. However, stem cells frequently evade standard chemotherapy treatment by homing to a niche; here they are protected from drug access or enter into a quiescent state that precludes sensitivity to the chemotherapy treatment. Additionally, the niche can harbor a reservoir of tumor cells that poses a considerable risk for patient relapse.
GTPases have been shown to regulate many aspects of intracellular dynamics, and play a role in cell proliferation, apoptosis, gene expression, and multiple other common cellular functions. GTPase proteins are intimate to processes which are related to cancer and its elaboration, and are targets for cancer treatment through modulation or inhibition of these GTPase targets. Further investigation of these proteins is necessary in order to understand and utilize the full potential of GTPases to treat a variety of diseases.

Technology Description

Researchers at the University of New Mexico have developed a cancer treatment strategy that uses specific GTPase inhibitors. Selective targeting of tumor and tumor stem cell adhesion mechanisms through GTPase interference allows these cells to be more readily killed by chemotherapy treatments. The GTPase inhibitor causes a reduction in ovarian tumor cell homing to the omentum (a privileged niche in the peritoneum), and researchers are testing the impact on bone marrow niche homing. This new approach will increase the efficacy of chemotherapy treatment and reduce the risk of cancer relapse.

About STC.UNM

As the technology-transfer and economic-development organization for the University of New Mexico, STC.UNM protects and commercializes technologies developed at the University of New Mexico (UNM) by filing patents and copyrights and transferring the technologies to the marketplace. We connect the business communication (companies, entrepreneurs and investors) to these UNM technologies for licensing opportunities and the creation of startup companies. Visit www.stc.unm.edu.

STC.UNM
SUPPORTING TECHNOLOGY TRANSFER AND CATALYZING ECONOMIC DEVELOPMENT AT THE UNIVERSITY OF NEW MEXICO

Application area

Selectively targeting tumor and tumor stem cell adhesion mechanisms through GTPase interference
Boosts the efficacy of chemotherapy and reduces the risk of relapse
Can be used to treat epithelial cancers such as ovarian, colon and breast, among others

Institution

The University of New Mexico

Inventors

Carolyn Muller
Yuna Guo
Angela Wandinger-Ness
Shelby Kenney
Laurie Hudson
Jennifer Gillette

联系我们

叶先生

电 话：021-65679356

手 机：13414935137

邮 箱：yeyingsheng@zf-ym.com