Neural Stem cell-mediated oncolytic immunotherapy for ovarian cancer

Grant Award Details

Neural Stem cell-mediated oncolytic immunotherapy for ovarian cancer

Grant Type: Therapeutic Translational Research Projects

Grant Number: TRAN1-11544

Investigator:

Name:	Karen Aboody
Institution:	City of Hope, Beckman Research Institute
Type:	PI

Disease Focus: Cancer, Ovarian Cancer, Solid Tumors

Human Stem Cell Use: Adult Stem Cell

Award Value: $2,873,262

Status: Pre-Active

Grant Application Details

Application Title: Neural Stem cell-mediated oncolytic immunotherapy for ovarian cancer

Public Abstract:

Translational Candidate

A clinically tested tumor-tropic neural stem cell (NSC) platform for effective distribution of oncolytic virotherapy to ovarian cancer metastases

Area of Impact

This NSC-delivered virotherapy approach will lead to a more efficacious, less toxic treatment for metastatic ovarian cancer and chemoresistent cells.

Mechanism of Action

CRAd-S-pk7 is a tumor specific replication-competent adenovirus driven by a survivin promoter, which is constitutively highly expressed in ovarian cancer cells. We will use our tumor-tropic/tumor-penetrating NSC platform to produce the oncolytic virus within IP ovarian metastases. Viral replication will lyse cancer cells and infect neighboring cancer cells, thus amplifying its effect until reaching normal tissue. We will also stimulate a secondary immune response to newly exposed tumor antigens.

Unmet Medical Need

Most ovarian cancer patients present late stage with abdominal metastases, and cant complete chemotherapy due to severe toxicity and chemoresistance. NSCs will more effectively target and distribute an oncolytic virus, selectively lysing cancer cells and stimulating an anti-tumor immune response.

Project Objective

Pre-IND meeting, ready for GMP clinical lot.

Major Proposed Activities

- In vivo determination of dosing regimen (multiple rounds) for maximal therapeutic efficacy
- In vivo determination of secondary immune response, following oncolysis of tumor cells
- In vivo determination of preliminary safety/tox profile

Statement of Benefit to California:

Ovarian cancer is the most lethal gynecologic malignancy, resulting in 1,500 deaths annually in California. At diagnosis, >70% of patients already have metastases throughout their abdomen, leading to a dismal 34% 5-year survival rate. We anticipate that our stem cell-delivered oncolytic virotherapy will lead to a more effective, less toxic treatment for these patients that will kill even metastatic tumor foci and chemoresistant cells, improving survival of ovarian cancer patients in California.

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