CMV-specific T cells expressing anti-HIV CAR and CMV vaccine boost as immunotherapy for HIV/AIDS

Grant Award Details

CMV-specific T cells expressing anti-HIV CAR and CMV vaccine boost as immunotherapy for HIV/AIDS

Grant Type: Late Stage Preclinical Projects

Grant Number: CLIN1-11223

Investigator:

Name:	Xiuli Wang
Institution:	City of Hope, Beckman Research Institute
Type:	PI

Disease Focus: HIV/AIDS, Infectious Disease

Award Value: $3,812,797

Status: Active

Grant Application Details

Application Title: CMV-specific T cells expressing anti-HIV CAR and CMV vaccine boost as immunotherapy for HIV/AIDS

Public Abstract:

Therapeutic Candidate or Device

Cytomegalovirus (CMV)-reactive T cells that express chimeric antibody receptors (CARs) to recognize and kill HIV-infected cells

Indication

HIV/AIDS

Therapeutic Mechanism

Antiretroviral drug therapy (ART) suppresses HIV to undetectable levels but does not eradicate the cellular reservoirs of the virus. We will engineer HIV-specific CAR T cells that will kill reactivated HIV-infected cells after ART withdrawal. These cells are also engineered to proliferate in response to a cytomegalovirus (CMV) . We will use a CMV vaccine to maintain these CAR T cells when HIV viremia is low, i.e., before ART withdrawal or when the HIV reactivation is controlled.

Unmet Medical Need

There is no cure for HIV and only half of the HIV patients adhere to ART in North America. Every year, ~16,000 HIV individuals die in the U.S. Our long-term goal is to develop a highly effective immunotherapy which significantly improves outcomes for HIV individuals and eliminate the need for ART.

Project Objective

IND filing and initiation of Phase 1 trial sites

Major Proposed Activities

- Optimize the clinical-manufacturing of the therapeutic product
- Complete the characterization of the efficacy and safety profiles of the therapeutic product
- Submit the regulatory documentation to initiate the clinical trial

Statement of Benefit to California:

HIV represents a major health and economic burden for CA. In 2016, CA had the highest number of newly diagnosed HIV cases in the US. This year, the CA Department of Public Health estimates medication expenditures of $338M for individuals who don't have private insurance, Medi-Cal or Medicare. This represents a $23.1M increase over last year, due to higher medication costs and an increase in Californians living with HIV. A curative treatment will have a significant benefit to the taxpayers of CA.

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