
Immunization strategies to prevent Zika viral congenital eye and brain disease

Grant Award Details

Immunization strategies to prevent Zika viral congenital eye and brain disease

Grant Type: Quest - Discovery Stage Research Projects

Grant Number: DISC2-10188

Project Objective: Utilize human iPSC-derived neural and ocular cells to identify growth attenuated and non-pathogenic Zika virus vaccine candidates that can prevent congenital ZIKV disease

Investigator:

Name:	Vaithilingaraja Arumugaswami
Institution:	University of California, Los Angeles
Type:	PI

Disease Focus: Infectious Disease, Neurological Disorders, Zika virus

Human Stem Cell Use: Adult Stem Cell, iPS Cell

Award Value: \$2,128,867

Status: Closed

Progress Reports

Reporting Period: 24 months

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Reporting Period: NCE 33 Months Final

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Grant Application Details

Application Title: Immunization strategies to prevent Zika viral congenital eye and brain disease

Public Abstract:**Research Objective**

Our objective is to utilize human iPSC-derived neural and ocular cells to identify growth attenuated and non-pathogenic Zika virus vaccine candidates that can prevent congenital ZIKV disease.

Impact

Currently, there are no therapies or vaccines available against ZIKV for human use. The human iPSC technology provides a unique opportunity to test the growth and virulence of vaccine candidates.

Major Proposed Activities

- Generating recombinant Zika viral vaccine candidates by genetic engineering.
- Assessing the growth and virulence of vaccine candidates in iPSC-derived neural and ocular cells.
- Characterizing vaccine virus growth and immunogenicity after various routes of administration in adult mice.
- Evaluating the safety of vaccine candidates in newborn mice.
- Immunization of female mice to limit ZIKV induced congenital disease during pregnancy.
- Assessing the vision and neuro-behavior of mice born to immunized mothers.

Statement of Benefit to California:

In the past year, millions of people have been infected with Zika virus globally. Currently, the California Department of Public Health has reported 490 travel-associated ZIKV infections including 6 cases of sexual transmission and 82 infected pregnant women (4 live births with microcephaly and eye disease). Mosquitos carrying ZIKV have been reported in California, which increases the risk of local transmission. A ZIKV vaccine can greatly benefit the people in California and beyond.

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