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Preclinical Development of a Crimean-Congo Hemorrhagic Fever Virus Vaccine

Project Number
1R01AI152207-01

Contact PI/Project Leader
GEISBERT, THOMAS WILLIAM

Awardee Organization
UNIVERSITY OF TEXAS MED BR GALVESTON

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Description

Abstract Text

PROJECT SUMMARY/ABSTRACT Crimean-Congo hemorrhagic fever virus (**CCHFV**) is a tick-borne emerging pathogen that causes severe and often fatal hemorrhagic fever in humans across a broad geographic range that includes more than 30 countries. The NIAID lists **CCHFV** as a Category A priority pathogen, a biological agent that poses the highest risk to national security and public health. CCHF is of particular importance to public health as there are no licensed vaccines or treatments available for use in humans, and because of the concern that the virus could be used as an agent of biological terrorism. The goal of this project is to advance the development of a recombinant vaccine based on next generation vesicular stomatitis virus (rVSV) vectors expressing the **CCHFV** glycoprotein as a potential medical countermeasure that can provide protection across all six genetically distinct clades of **CCHFV**. This application proposes to develop and pre-clinically validate a rVSV vectored CCHF vaccine. Next generation Vesiculovax™ CCHF vaccines will be compared head-to-head with a prototype rVSV vaccine that has been shown to completely protect animals against lethal **CCHFV** infection. Vaccines will be compared for immunogenicity, lack of neurovirulence, and the ability to protect STAT-1 knockout mice against all six M segment clades of **CCHFV**. A lead candidate vaccine will then be down selected. Supporting studies using a newly developed lethal nonhuman primate model of **CCHFV** will be employed to confirm protective efficacy of the lead vaccine candidate, assess the ability to the vaccine to provide rapid protection, and finally to begin to determine correlates of protection. This proposal will draw together expertise in vaccine development, **CCHFV** biology, and animal modeling needed to develop a vaccine that meets both the outbreak and bioweapon scenarios that require rapid protection against all **CCHFV** clades with a single administration.

Public Health Relevance Statement

PROJECT NARRATIVE Crimean-Congo hemorrhagic fever virus (CCHFV) is a tick-borne emerging pathogen that causes severe and often fatal hemorrhagic fever in humans across a broad geographic range that includes more than 30 countries. CCHFV is of particular importance to public health as there are no licensed vaccines or treatments available for use in humans and because of the concern that it could be used as an agent of biological terrorism. The recombinant vaccine proposed here offers a potential medical countermeasure that can provide coverage across all six genetically distinct clades of CCHFV.

NIH Spending Category

Biodefense | Biotechnology | Emerging Infectious Diseases | Immunization | Infectious Diseases | Orphan Drug | Prevention | Rare Diseases | Vaccine Related | Vector-Borne Diseases

Project Terms

Advanced Development | Africa | Animal Model | Animals | Applications Grants | Arboviruses | Attenuated | Biological Assay | Biological Products | Biological Sciences | Biology | Bioterrorism | Category A pathogen | Clinical Treatment | Cluster randomized trial | Containment | Country | Crimean Hemorrhagic Fever | Crimean-Congo Hemorrhagic Fever Virus | Cyclic GMP | Dengue Virus | Disease | Disease Outbreaks | Dose | Ebola | Ebola Hemorrhagic Fever | Ebola virus | Effectiveness | Frankfurt-Marburg Syndrome Virus | GTP-Binding Proteins | Generations | Genome | Geography | Glycoproteins | Goals | Guinea | HIV Vaccine Trials Network | HIV vaccine | Head | Health Personnel | Human | Immunization | Knockout Mice | Laboratories | Lassa virus | Lead

Read More

Details

Contact PI/ Project Leader

Name
GEISBERT, THOMAS WILLIAM

Title
PROFESSOR

Other PIs

Not Applicable

Program Official

Name
ALARCON, RODOLFO M

Contact

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City
GALVESTON

Country
UNITED STATES (US)

MICROBIOLOGY/IMMUN/VIROLOGY

Organization Type
SCHOOLS OF MEDICINE

TX

Congressional District
14

Other Information

FOA
RFA-AI-19-037

Study Section
Special Emphasis Panel[ZAI1 FDS-M (M1)]

Fiscal Year
2020

Award Notice Date
15-July-2020

Administering Institutes or Centers
NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES

DUNS Number
800771149

CFDA Code
855

Project Start Date 15-July-2020

Project End Date 30-June-2025

Budget Start Date 15-July-2020

Budget End Date 30-June-2021

Project Funding Information for 2020

Total Funding
$670,889

Direct Costs
$525,912

Indirect Costs
$144,977

Year	Funding IC	FY Total Cost by IC
2020	NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES	$670,889

NIH Categorical Spending

Click here for more information on NIH Categorical Spending

Funding IC	FY Total Cost by IC	NIH Spending Category
NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES	$670,889	Biodefense; Biotechnology; Emerging Infectious Diseases; Immunization; Infectious Diseases; Orphan Drug; Prevention; Rare Diseases; Vaccine Related; Vector-Borne Diseases;

Sub Projects

No Sub Projects information available for 1R01AI152207-01

Publications

No Publications available for 1R01AI152207-01

Patents

No Patents information available for 1R01AI152207-01

Outcomes

The Project Outcomes shown here are displayed verbatim as submitted by the Principal Investigator (PI) for this award. Any opinions, findings, and conclusions or recommendations expressed are those of the PI and do not necessarily reflect the views of the National Institutes of Health. NIH has not endorsed the content below.

No Outcomes available for 1R01AI152207-01

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News and More

Related News Releases

No news release information available for 1R01AI152207-01

History

No Historical information available for 1R01AI152207-01

Similar Projects

No Similar Projects information available for 1R01AI152207-01