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Recombinant BCG-based SARS-CoV-2 vaccine

Project Number
1R21AI158056-01

Contact PI/Project Leader
JACKSON, MARY

Awardee Organization
COLORADO STATE UNIVERSITY

Description

Abstract Text

Summary The scale of the humanitarian and economic impact of the **COVID**-19 pandemic places a high priority on the development of prophylactic and therapeutic countermeasures to better control SARS-CoV-2 infections. Among the priorities listed in the NIAID Strategic Plan for **COVID**-19 research is the need to pursue multiple strategies to develop a **COVID**-19 **vaccine** efficacious across the lifespan, including in the elderly. Recent epidemiologic studies have highlighted the potential for Mycobacterium bovis BCG (the only approved **vaccine** for TB prevention) to mitigate through non-specific immunity the prevalence and severity of the symptoms of **COVID**-19. Indeed, BCG vaccination has been known since the 1960s to non-specifically improve immunity against a number of viral pathogens resulting in reduced morbidity and mortality in neonates, children and the elderly. Other unique attributes of BCG that make it a **vaccine** platform of choice for the recombinant expression of heterologous antigens include the fact that it can produce long-lasting CD4+ and CD8+ T cell responses, its natural adjuvant properties, its remarkable safety record (> 5 billion doses given to date) and the fact that it is easy and inexpensive to mass-produce. The goal of this project is to leverage ongoing **COVID**-19 research efforts at Colorado State University to generate recombinant BCG (rBCG) strains expressing SARS-CoV-2 immunogens (Aim 1) and to assess the immunogenicity and protective efficacy of rBCG in an established animal challenge model of SARS-CoV-2 infection (Aim 2). We hypothesize that the induction of non-specific immunity against SARS-CoV-2 combined with the adaptive immune responses elicited by the recombinant expression of validated SARS-CoV-2 antigens will yield rBCG- based **COVID**-19 vaccines conferring long-lasting protective immunity in people of all ages. Success in this approach could rapidly deliver an inexpensive, safe and globally deployable **vaccine**.

Public Health Relevance Statement

Project Narrative This project proposes to develop recombinant BCG-based COVID-19 vaccine candidates ready to proceed toward human clinical trials.

NIH Spending Category

Biotechnology Coronaviruses Emerging Infectious Diseases Immunization Infectious Diseases Prevention Vaccine Related

Project Terms

2019-nCoV Adjuvant Age Animal Model Animals Antibodies Antigens Attention Bacille Calmette-Guerin vaccination Bacillus Biological Assay CD8-Positive T-Lymphocytes **COVID**-19 **COVID**-19 pandemic **COVID**-19 **vaccine** Cell model Child Chimeric Proteins Clinical Trials

Thank you for your feedback!

Cloning **Colorado** **Contracts** **Coronavirus** **Development** **Dose**
Elderly **Feline Coronavirus** **Flow Cytometry** **Fluorescence Microscopy**
Funding **Genetic** **Goals** **Grant** **Heterophile Antigens** **Human**

Read More

Details

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Not Applicable

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Organization

Name
COLORADO STATE UNIVERSITY

City
FORT COLLINS

Country
UNITED STATES (US)

Department Type
MICROBIOLOGY/IMMUN/VIROL(

Organization Type
SCHOOLS OF VETERINARY MEDICINE

State Code
CO

Congressional District
04

Other Information

FOA
PAR-20-177

Study Section
Special Emphasis Panel[ZAI1 JHM-X (S3)]

Fiscal Year
2020

Award Notice Date
31-July-2020

Administering Institutes or Centers
NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES

DUNS Number
785979618

CFDA Code
855

Project Start Date
01-August-2020

Project End Date
31-July-2022

Budget Start Date
01-August-2020

Budget End Date
31-July-2022

Project Funding Information for 2020

Total Funding
$411,968

Direct Costs
$275,000

Indirect Costs
$136,968

Year	Funding IC	
2020	NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES	$411,968

NIH Categorical Spending

Click here for more information on NIH Categorical Spending

Funding IC	FY Total Cost by IC	NIH Spending Category

Thank you for your feedback!

NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES	$411,968	Biotechnology; Coronaviruses; Emerging Infectious Diseases; Immunization; Infectious Diseases; Prevention; Vaccine Related;

Sub Projects

No Sub Projects information available for 1R21AI158056-01

Publications

No Publications available for 1R21AI158056-01

Patents

No Patents information available for 1R21AI158056-01

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 1R21AI158056-01

Clinical Studies

No Clinical Studies information available for 1R21AI158056-01

News and More

Related News Releases

No news release information available for 1R21AI158056-01

History

Thank you for your feedback!

No Historical information available for 1R21AI158056-01

Similar Projects

No Similar Projects information available for 1R21AI158056-01

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