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Toward a protective Covid-19 vaccine utilizing an established vector platform

Project Number
1R21AI158044-01

Contact PI/Project Leader
SCHNELL, MATTHIAS
JOHANNES

Awardee Organization
THOMAS JEFFERSON
UNIVERSITY

Description

Abstract Text

Abstract The recently emerged coronavirus SARS-CoV-2, the causative agent of **COVID-19**, is rapidly spreading in the world with over 4,8 million cases, and 320,000 deaths as of May 16, 2020. This novel coronavirus is thought to have emerged from a live animal market in Wuhan, China. It has quickly spread in the community with large clusters of human-to-human transmission. Sequencing of several isolates has determined that the most closely related strains are SARS-like bat coronavirus lineages. The susceptibility of SARS-CoV-2 to anti-viral compounds, its ability to replicate in cell lines or host factors regulating its replication are all currently unknown. Importantly, there are no therapeutics available to treat the virus, although investigational studies are underway. Modelling of the current outbreak suggests that the virus could infect >1 billion people and become a yearly epidemic. Identifying people who have developed antibodies is important for the epidemiology as well as patient care. With the exponentially expounding threat of SARS-CoV-2 to global health, a **vaccine** is desperately needed. Herein we propose the development of a novel, highly efficacious and safe **COVID-19 vaccine** with facile scale up potential. Our proposal uses a rabies virus-based vector that has proven to be an efficient **vaccine** against emerging and re-emerging infectious diseases. We have demonstrated that inactivated rabies virus particles containing the coronavirus (CoV) spike S1 protein induce potent immune responses and provide protection in animal systems against Middle Eastern Respiratory Syndrome coronavirus (MERS) and Severe Acute Respiratory Syndrome (SARS) coronavirus, both of which are highly related to SARS-CoV-2. A similar **vaccine** entitled CoraVax™ is available and herein we propose to analyze CoraVax™ immunogenicity in mice as well as its ability to protect in a hamster model.

Public Health Relevance Statement

Lay language Currently there is no approved COVID-19 vaccine. In our application, we propose to test a novel vaccine against Covis-19.

NIH Spending Category

Biotechnology	Coronaviruses	Emerging Infectious Diseases		Immunization
Infectious Diseases	Lung	Pneumonia	Pneumonia & Influenza	Prevention
Vaccine Related				

Project Terms

2019-nCoV	Adjuvant	Animal Model	Animals	Antibodies	
Antibody Response	Antigens	Antiviral Agents	Biology	COVID-19	
COVID-19 vaccine	Cell Line	Cessation of life	China	Chiroptera	
Communities	Complementary DNA	Coronavirus	Coronavirus Infections		
Development	Disease	Disease Outbreaks	Emerging Communicable Diseases		
Epidemic	Epidemiology	Goals	Hamsters	Human	Immune response
Immunity	Immunization	Infection	Integration Host Factors	Investigation	
Laboratories	Language	Mammals	Membrane	Methods	

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1R21AI158044-01	SCHNELL, MATTHIAS JOHANNES	THOMAS JEFFERSON UNIVERSITY

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Organization

Name	Department Type	State Code
THOMAS JEFFERSON UNIVERSITY	MICROBIOLOGY/IMMUN/VIROLOGY	PA
City	Organization Type	Congressional District
PHILADELPHIA	SCHOOLS OF MEDICINE	03
Country		
UNITED STATES (US)		

Other Information

FOA	Administering Institutes or Centers	Project Start Date	16-July-2020
PAR-20-177	NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES	Project End Date	30-June-2022
Study Section	DUNS Number	Budget Start Date	16-July-2020
Special Emphasis Panel(ZA1MMF-X (S2))	CFDA Code	Budget End Date	30-June-2022
	053284659 855		
Fiscal Year	Award Notice Date		
2020	16-July-2020		

Project Funding Information for 2020











Total Funding	Direct Costs	Indirect Costs
\$429,000	\$275,000	\$154,000

Year	Funding IC	
2020	NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES	\$429,000

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	\$429,000	Biotechnology; Coronaviruses; Emerging Infectious Diseases; Immunization; Infectious Diseases; Lung; Pneumonia; Pneumonia & Influenza; Prevention; ...

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1R21AI158044-01	SCHNELL, MATTHIAS JOHANNES	THOMAS JEFFERSON UNIVERSITY

Publications

No Publications available for 1R21AI158044-01

Patents

No Patents information available for 1R21AI158044-01

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 1R21AI158044-01

Clinical Studies

No Clinical Studies information available for 1R21AI158044-01

News and More

Related News Releases

No news release information available for 1R21AI158044-01

History

No Historical information available for 1R21AI158044-01

Similar Projects

No Similar Projects information available for 1R21AI158044-01

Thank you for your feedback!