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Similar Projects

Generation and characterization of broadly neutralizing antibodies against diverse Henipaviruses

Project Number
5F31AI133943-02

Contact PI/Project Leader
AZARM, KRISTOPHER

Awardee Organization
ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI

Description

Abstract Text

PROJECT SUMMARY The recent global emergence of Henipaviruses (HNVs) into human populations changes the risk calculus associated with the species. We see a specific need for a vaccine strategy and passive immunotherapies that will protect not only against HNVs that have previously emerged, but also diverse HNVs should zoonotic spillover and viral emergence occur from one the many divergent HNVs. The objectives of this proposal are to leverage our expertise on the functional and antigenic diversity of the HNV surface glycoproteins in designing a rational vaccine strategy against HNVs and to better understand the antibody response to the HNV glycoproteins. We do so by 1) performing a vaccination strategy that will exploit the conserved mode of host receptor ephrinB2 interaction amongst the diverse spectrum of HNV receptor attachment glycoproteins in order to generate broadly neutralizing antibodies and by 2) characterizing the conserved, vulnerable epitopes these antibodies target in the surface glycoproteins. We will use an array of virological, immunological, structural, and biochemical methods to address these aims. Combined, these approaches will generate novel broadly neutralizing antibodies against the ever-expanding spectrum of HNVs and reveal conserved regions of the HNV glycoproteins that can be exploited in future vaccination strategies.

Public Health Relevance Statement

PROJECT NARRATIVE Henipaviruses are a rising global threat, as evidenced by the World Health Organization's inclusion of Nipah virus on a 2015 list of the top emerging diseases likely to cause major epidemics. The potential for Henipavirus spillover into human populations underscores the need for broadly neutralizing antibodies that can be used in passive immunotherapy and for vaccine strategies that will elicit broad protection in high-risk areas, e.g. rural areas of Southeast Asia, Australia, Africa, etc. Through the studies proposed in this application, we will perform a rational vaccine design strategy to generate broadly neutralizing antibodies against Henipaviruses to fulfill this specific need.

NIH Spending Category

Biodefense Biotechnology Emerging Infectious Diseases Immunization Infectious Diseases Prevention Vaccine Related

Project Terms

Address Africa African Animals Antibodies Antibody Response Antigenic Diversity Area Australia Binding Binding Sites Biochemical Biological Assay Calculi Cell Separation Cell surface Cells Chiroptera Complex Crystallization DNA Development Disease Distal Electroporation Epidemic Epitopes Escape Mutant Exposure to Family Fruit Future GTP-Binding Proteins Generations Ghana Glycoproteins Head Hendra Virus Henipavirus Human Immune Immune response Immunize Immunologics Inbred BALB C Mice Lead Maps Membrane

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Organization Type
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State Code
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Congressional District
13

Other Information

FOA
PA-16-309

Study Section
Special Emphasis Panel[ZRG1-F13-Z(20)L]

Fiscal Year
2019

Award Notice Date
21-March-2019

Administering Institutes or Centers
NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES

DUNS Number
078861598

CFDA Code
855

Project Start Date
01-April-2018

Project End Date
31-March-2020

Budget Start Date
01-April-2019

Budget End Date
31-March-2020

Project Funding Information for 2019

Total Funding
$45,016

Direct Costs
$45,016

Indirect Costs
$0

Year	Funding IC	
2019	NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES	$45,016

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	$45,016	Biodefense; Biotechnology; Emerging Infectious Diseases; Immunization; Infectious Diseases; Prevention; Vaccine Related;

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ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI

No Publications available for 5F31AI133943-02

Patents

No Patents information available for 5F31AI133943-02

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 5F31AI133943-02

Clinical Studies

No Clinical Studies information available for 5F31AI133943-02

News and More

Related News Releases

No news release information available for 5F31AI133943-02

History

No Historical information available for 5F31AI133943-02

Similar Projects

No Similar Projects information available for 5F31AI133943-02