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DNA prime / rVSV boost Multi-Antigen Universal Influenza Vaccine

Project Number Former Number 7R44Al122371-03 2R44Al122371-02A1

Contact PI/Project Leader

BAGLEY, KENNETH C

Awardee Organization ORLANCE, INC.

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Abstract Text

Abstract A universal influenza vaccine is believed to be possible if conserved regions of influenza are effectively targeted and appropriate immune responses are generated against those targets. The enhanced safety, stability, and accelerated product development and production generally provided by DNA vaccination make it an appealing approach to develop such a universal influenza vaccine. Unfortunately, immune responses to universal influenza antigens are typically weak and earlier studies of DNA vaccination in humans showed poor humoral immunogenicity. However, recent advancements in vaccine delivery and use of adjuvants and viral vector boosts have improved the outlook of DNA vaccination. To overcome obstacles to developing an effective, practical, and truly universal influenza vaccine, we propose to further develop and test our DNA prime / viral-vectored boost vaccine regimen, which employs novel immunogens derived from the following four conserved influenza A antigens: 1) the stem region of hemagglutinin (Stem); 2) the matrix 2 protein ectodomain (M2e); 3) the nucleoprotein (NP); and 4) the matrix 1 protein (M1). Our phase I results indicate that together, these antigens evoke the immunological breadth and types of immune responses necessary to target a broad range of both seasonal and potential pandemic influenza strains and to evoke appropriate antiviral immune responses necessary to combat these influenza viral infections. Our strategy also uses a clinically proven DNA adjuvant that maximizes immunogenicity, tunes the responses toward an antiviral Th1 phenotype, and improves the anti-viral activities of the humoral immune response. Under this phase II SBIR application, we will test a viral-vectored boost for amplification of the DNA-raised immune responses. We will also determine the protective effects of our vaccine in other relevant preclinical animal models (ferrets and macaques) and perform studies intended to further define the vaccine's mechanisms of action. 3

Public Health Relevance Statement

Project Narrative The objective of this project is to continue development of a "universal" influenza A vaccine. Such a vaccine is needed provide protection against all influenza A viruses to a substantial portion of the world's population.

NIH Spending Category

Biodefense Biotechnology Emerging Infectious Diseases Immunization Infectious Diseases
Influenza Pneumonia & Influenza Prevention Vaccine Related

Project Terms

Adjuvant **Animal Model Animals Antibodies Antibody Formation Antiviral Agents Antigens CD8-Positive T-Lymphocytes** Clinical DNA **DNA Vaccines DNA** amplification **Development** Immune response Fc Receptor Hemagglutinin **Immunize Immunologics Ferrets** Human Individual **Inflammatory** Influenza Influenza A Virus, H5N1 Subtype Influenza A Virus, H7N9 Subtype Influenza A virus Interferon Type II Interleukin-12 Lung **Mucous Membrane** Macaca Mediating **Nucleoproteins Pathogenicity Phase** Mus **Phenotype Population Pre-Clinical Model Production Proteins Publishing** Reagent Regimen Recombinants Safety **Small Business Innovation Research Grant** T cell response Role

Read More



Contact PI/ Project Leader

Name BAGLEY, KENNETH C ☑

itle

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Other PIs

Not Applicable

Name

GORDON, JENNIFER L

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Thank you for your feedback!

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2R44AI122371-02A1

Contact PI/Project

Leader

BAGLEY, KENNETH C

Awardee Organization ORLANCE, INC.

Country

UNITED STATES (US)

Other Information

FOA PA-18-590 **Study Section**

Special Emphasis Panel ZRG1-IMM-R(12)B]

Award Notice Date Fiscal Year 2019 16-August-2019

Administering Institutes or Centers NATIONAL INSTITUTE OF ALLERGY **AND INFECTIOUS DISEASES**

DUNS Number CFDA Code

080337564 855

01-September-

01-September-

Date 2019

Project Start

Budget Start

Project End Date 30-April-2022

2019 Date

30-April-2020 **Budget End Date**

Project Funding Information for 2019

Total Funding Direct Costs Indirect Costs

\$1,000,000 \$0 \$0

Funding IC FY Total Cost by IC Year 2019 NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES \$1,000,000

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	\$1,000,000	Biodefense; Biotechnology; Emerging Infectious Diseases; Immunization; Infectious Diseases; Influenza; Pneumonia & Influenza; Prevention; Vaccine Related:

品 Sub Projects

No Sub Projects information available for 7R44AI122371-03

Publications

No Publications available for 7R44AI122371-03

No Patents information available for 7R44Al122371-03

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 7R44AI122371-03

Clinical Studies

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Contact PI/Project Leader

BAGLEY, KENNETH C

Awardee Organization ORLANCE, INC.

No news release information available for 7R44Al122371-03

← History

No Historical information available for 7R44Al122371-03

Similar Projects

No Similar Projects information available for 7R44Al122371-03