Back to Search Results

Description
Details
Sub-Projects
Publications
Patents
Outcomes
Clinical Studies
News and More
History
Similar Projects

Dengue Virus Infection in India

Project Number	Contact PI/Project Leader	Awardee Organization
5U01AI115651-05	AHMED, RAFI	EMORY UNIVERSITY

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Description

Abstract Text

DESCRIPTION (provided by applicant): India is now an epicenter of dengue with an estimated 20-40 million infections per year making India the country with the largest number of dengue infections in the world. This ICIDR program is designed with a focus on dengue **virus** infection in India. The overall objectives are twofold: (i) To build capacity for dengue research i India using state of the art tools and technologies; and (ii) To address critical scientific questins important to the health and well being of dengue exposed population in India. The following Specific Aims are proposed: 1) To use a systems biological approach to define molecular signatures of the innate and adaptive immune responses that occur following acute dengue infection and to determine the extent to which such signatures correlate with disease outcome. 2) To determine whether IgG Fc glycan composition is a determinant of antibody-dependent enhancement of secondary dengue **virus** infection and whether Fc glycan composition may have a role in the pathogenesis of severe dengue disease. 3) To characterize the human B cell response during dengue infection and generate dengue **virus** specific monoclonal antibodies from plasmablasts. 4) To characterize CD4 and CD8 T cell responses in dengue patients. 5) To define dengue **virus** genotypes in context of disease severity and immune response induced in dengue patients. Taken together the above studies should provide insight into the pathogenesis of dengue **virus** infection in India and provide guidelines for diagnostics and treatment of dengue infection. Our ICIDR program is designed in such a way that the state of the art tools and technologies needed for all the aspects of the proposed research are set up in India and actually used there to carry the proposed research. This model allows scientific training, enhanced collaborative interactions, and sustained capacity building in India.

Public Health Relevance Statement

PUBLIC HEALTH RELEVANCE: India brings the highest dengue disease burden in the world, but, unfortunately, it remains the weakest link in the fight against the dengue menace. Many questions beg answers with reference to human immunity to dengue- an understanding of which is critical for making better vaccines, diagnostics and biomarkers.

NIH Spending Category

Biodefense Biotechnology Clinical Research Emerging Infectious Diseases Infectious Diseases Rare Diseases Vector-Borne Diseases

Project Terms

Acute Address Antibodies Antibody-Dependent Enhancement Antiviral Agents B-Lymphocytes Biological Markers CD4 Positive T Lymphocytes CD8-Positive T-Lymphocytes Clinical Country Coupling Dengue Dengue Infection Dengue **Virus** Diagnostic Disease Disease Outcome Fc Receptor Gene Expression Profile Genomics Genotype Goals Guidelines Health Human Immune response Immunity Immunoglobulin G Immunologic Factors Immunology India Infection Link Mediating Modeling Modification Molecular Profiling Monoclonal Antibodies Outcome Pathogenesis Patients Pattern Peripheral Blood Mononuclear Cell Personal Satisfaction Phase Plasmablast Polysaccharides

Read More

Details

Contact PI/ Project Leader

Name
AHMED, RAFI
Title
PROFESSOR/DIRECTOR
Contact
rahmed@emory.edu

Other PIs

Not Applicable

Program Official

Name
MORABITO, KAITLYN MELISSA
Contact
dambachkm@mail.nih.gov

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Back to Search Results

Description
Details
Sub-Projects
Publications
Patents
Outcomes
Clinical Studies
News and More
History
Similar Projects

Dengue Virus Infection in India

Project Number
5U01AI115651-05

Contact PI/Project Leader
AHMED, RAFI

Awardee Organization
EMORY UNIVERSITY

UNITED STATES (US)

Other Information

FOA
RFA-AI-14-001

Study Section
ZAI1-AWA-M(S2)

Fiscal Year
2019

Award Notice Date
16-January-2019

Administering Institutes or Centers
NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES

DUNS Number
066469933

CFDA Code
855

Project Start Date
01-February-2015

Project End Date
31-January-2021

Budget Start Date
01-February-2019

Budget End Date
31-January-2021

Project Funding Information for 2019

Total Funding
$649,181

Direct Costs
$825,280

Indirect Costs
$177,284

Year	Funding IC	FY Total Cost by IC
2019	NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES	$649,181

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	$649,181	Biodefense; Biotechnology; Clinical Research; Emerging Infectious Diseases; Infectious Diseases; Rare Diseases; Vector-Borne Diseases;

Sub Projects

No Sub Projects information available for 5U01AI115651-05

Publications

Export

Journal (Link to PubMed abstract)	Authors	Publication Year	Similar Publications	CitedBy	iCit
Antibody response patterns in chikungunya febrile phase predict protection versus progression to chronic arthritis.					
JCI insight 2020 04 09; 5 (7)	Nayak, Kaustuv; Jain, Vineet; Kaur, Manpreet; Khan,	2020		iCite 0.30	
View All					
Spatio-temporal distribution analysis of circulating genotypes of dengue virus type 1 in western and southern states of India by a one-step real-time RT-PCR assay.					
Infection, genetics and evolution : journal of molecular epidemiology and evolutionary genetics in infectious diseases 2019 11; 75 103989	Alagarasu, K; Patil, J A; Kakade, M B; More, A M; Bote,	2019		iCite 0.68	
View All					
A tetravalent virus-like particle vaccine designed to display domain III of dengue envelope proteins induces multi-serotype neutralizing antibodies in mice and macaques which confer protection against antibody dependent enhancement in AG129 mice.					
PLoS neglected tropical diseases 2018 01; 12 (1) e0006191	Ramasamy, Viswanathan; Arora, Upasana; Shukla, Rahul;	2018		iCite 3.91	
View All					
Emergence of the Asian genotype of DENV-1 in South India.					

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Back to Search Results

Description
Details
Sub-Projects
Publications
Patents
Outcomes
Clinical Studies
News and More
History
Similar Projects

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Science (New York, N.Y.) 2017 01 27; 355 (6323) 395-398	Wang, Taia T; Sewatanon, Jaturong; Memoli, Matthew J;	2017		iCite 8.02

View All

Humoral cross-reactivity between Zika and dengue viruses: implications for protection and pathology.

Emerging microbes & infections 2017 May 10; 6 (5) e33	Priyamvada, Lalita; Hudson, William; Ahmed, Rafi; Wrammert, Jens	2017		iCite 4.78

Patents

No Patents information available for 5U01AI115651-05

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 5U01AI115651-05

Clinical Studies

No Clinical Studies information available for 5U01AI115651-05

News and More

Related News Releases

No news release information available for 5U01AI115651-05

History

No Historical information available for 5U01AI115651-05

Similar Projects

No Similar Projects information available for 5U01AI115651-05

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