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Omics for TB: Response to Infection and Treatment

Project Number
5U19AI135976-03

Contact PI/Project Leader
ADEREM, ALAN AOther PIs

Awardee Organization
SEATTLE CHILDREN'S HOSPITAL

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Description

Abstract Text

Abstract – Overview With about 10 million new cases of active disease and 1.8 million deaths annually, TB is a global health emergency. A distinguishing feature of TB disease is its biological heterogeneity, which manifests at the clinical level chiefly in 2 forms: disease progression and treatment response. The premise of this Program is that the heterogeneous outcomes of TB infection and treatment are determined by the interplay of competing regulatory networks between the pathogen and the host. Our primary goal is to apply systems biology approaches to elucidate the biological control underlying the variability of disease outcome and response to treatment. Our first specific aim is to define novel host regulators of TB disease progression in vivo, and the innate and adaptive networks they control. We will also seek to define novel Mtb regulators of TB treatment response, and the Mtb regulatory networks that they control. This work will allow us to produce and validate host and Mtb models of TB disease progression and treatment response. Altogether, this program addresses key unanswered questions that stymie efforts to combat the TB **pandemic**. Our team has perfected the required platforms and scientific approaches to execute this ambitious research plan in a timely and cost- effective manner. All the participating investigators have strong records of interacting productively, and of disseminating their data and reagents to the scientific community.

Public Health Relevance Statement

Project Narrative - Omics for TB: Response to Infection and Treatment Mycobacterium tuberculosis causes ~10 million new cases of active disease and 1.8 million deaths each year, and our tools to combat tuberculosis (TB) disease are universally outdated and overmatched. This project combines separate advances in systems biology and network modeling to produce experimentally grounded and verifiable systems-level models of the host and MTB regulatory networks that affect disease progression and response to treatment.

Project Terms

Address Affect Bacteria Biological Cessation of life Clinical Collection Communicable Diseases Communities Complex Data Data Set Disease Disease Outcome Disease Progression Drug-sensitive Eicosanoids Elements Genetic Transcription Goals Human Immunologic Receptors Infection Inflammatory Response Infrastructure Machine Learning Mass Spectrum Analysis Methodology Modeling Molecular Profiling Mouse Strains Multiplexed Ion Beam Imaging Mus Mycobacterium tuberculosis Network-based Outcome Pharmaceutical Preparations Phenotype Predisposition Proteomics Reagent Receptor Activation Records Regulator Genes Research Research Personnel Resources

Read More

Details

Contact PI/ Project Leader

Name
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Title
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Other PIs

Name
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Program Official

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Organization

Name
SEATTLE CHILDREN'S HOSPITAL
City
SEATTLE
Country
UNITED STATES (US)
Department Type
Unavailable
Organization Type
Independent Hospitals
State Code
WA
Congressional District
07

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SEATTLE CHILDREN'S HOSPITAL

Fiscal Year
2019

Award Notice Date
21-February-2019

Budget Start Date
01-February-2019

Budget End Date
31-January-2020

Project Funding Information for 2019

Total Funding
$3,359,502

Direct Costs
$2,323,147

Indirect Costs
$1,370,783

Year	Funding IC	FY Total Cost by IC
2019	NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES	$3,359,502

Sub Projects

Export

Project Number	Sub	Principal Investigator(s)/ Project Leader(s)	Organization	Fiscal Year	Admin IC	FY Total Cost by
Project 1: Mechanisms of Disease Progression						
5U19AI135976-03	6321	ADEREM, ALAN A	SEATTLE CHILDREN'S HOSPITAL	2019	NIAID	*$1,195,053*
Adminstrative Core						
5U19AI135976-03	6317	ADEREM, ALAN A	SEATTLE CHILDREN'S HOSPITAL	2019	NIAID	*$258,881*
Technology Core						
5U19AI135976-03	6319	AITCHISON, JOHN D.	SEATTLE CHILDREN'S HOSPITAL	2019	NIAID	*$1,214,310*
Modeling Core						
5U19AI135976-03	6320	BALIGA, NITIN S	SEATTLE CHILDREN'S HOSPITAL	2019	NIAID	*$429,688*
Project 2: Response to Treatment						
5U19AI135976-03	6322	SHERMAN, DAVID R	SEATTLE CHILDREN'S HOSPITAL	2019	NIAID	*$452,538*

Publications

No Publications available for 5U19AI135976-03

Patents

No Patents information available for 5U19AI135976-03

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 5U19AI135976-03

Clinical Studies

No Clinical Studies information available for 5U19AI135976-03

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SEATTLE CHILDREN'S HOSPITAL

History

No Historical information available for 5U19AI135976-03

Similar Projects

No Similar Projects information available for 5U19AI135976-03

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