National Science Foundation
WHERE DISCOVERIES BEGIN

News Release 17-108

NSF, NIH and USDA make new awards to combat infectious diseases

Ecology and Evolution of Infectious Diseases program focuses on diseases that affects plants, humans, other animals

An EEID-funded project at at Old Dominion University will study tick-borne Rickettisial pathogens.

Credit and Larger Version (/news/news_images.jsp?cntn_id=243614&org=NSF)

November 3, 2017

This material is available primarily for archival purposes. Telephone numbers or other contact information may be out of date; please see current contact information at media contacts (/staff/sub_div.jsp?org=olpa&orgId=85).

Preventing outbreaks and controlling the spread of infectious diseases requires knowledge about how pathogens move through populations, and the factors that can keep them contained. To that end, the National Science Foundation (NSF), in partnership with the National Institutes of Health (NIH) and the National Institute of Food and Agriculture (NIFA), provided over $15 million through the Ecology and Evolution of Infectious Diseases (EEID) program to fund eight new projects looking at how pathogens interact with humans, animals and plants.

The EEID program focuses on building multidisciplinary teams of scientists to bolster the research community's knowledge of pathogens and their diseases, which can decimate crops, ravage animal populations and harm humans.

"Increasingly, by combining the knowledge from different fields of science and integrating the work of multiple research teams, we're seeing connections between how environments change and how infectious diseases spread," said James Olds, head of NSF's Biological Sciences Directorate (BIO). "The research supported through EEID will provide new foundations for creating the means to predict, control and address these risks."

Through their collaboration, the agencies supporting EEID create connections among researchers studying issues including ecology and habitat alteration, invasive species movement, the intersection between human population dynamics and pathogen transmission, and the spread of pathogens from animals to humans. EEID-funded research has implications ranging from healthcare to food security.

"This unique multidisciplinary and multiagency research program brings together teams of investigators, often with vastly different expertise, to address priority disease ecology research," said Christine Jessup, program officer at the NIH Fogarty International Center's Division of International Training and Research. "These teams offer new approaches and insights to the field with the goal of enhancing our ability to understand, predict, control and prevent infectious diseases globally, including many emerging and re-emerging infectious disease threats."

Wide scope of awards

The 2017 awards span a wide range of research topics, and include projects that address fundamental questions about pathogens and diseases, as well as research that would have an immediate impact on infectious disease management.

"The funded projects range in scope from meters to the entire globe and time scales from weeks to millennia," said Sam Scheiner, an EEID program officer in NSF's BIO directorate. "This broad approach to attacking problems in infectious disease ecology and evolution will provide the basic knowledge that we will need when the next Ebola virus or Zika virus outbreak happens."

One project, for example, focuses on nontuberculous mycobacterial lung disease (NTM-LD), a growing concern worldwide due to its increasing number of cases and resistance to current treatments. The project, based at the National Jewish Health hospital of Denver, Colorado, will track and model the sources of the disease in Hawaii, the area of the United States where it is most prevalent.

Another project, based at Old Dominion University in Norfolk, Virginia, will perform geospatial analyses of a class of tick-borne pathogens and their diseases along the U.S. East Coast and in South Africa. The research team will compare results from these regions to learn more about what drives the spread of such pathogens.

Other projects have economic, as well as health implications. A project based at the University of Washington on viral transmission in salmon will yield data on a critical fish stock. Still others, such as a project at Washington State University studying infectious cancer in Tasmanian devils, will develop models that illuminate how disease can affect endangered populations of animals.

This year's EEID awards include:

- Predicting the evolution of vector-borne disease dynamics in a changing world <https://www.nsf.gov/awardsearch/showAward?AWD_ID=1717498> , Dina Fonseca, Smithsonian Institution
- Global patterns, predictors, and their dynamical consequences in zoonotic diseases of mammals <https://www.nsf.gov/awardsearch/showAward?AWD_ID=1717282> , Barbara Han, Cary Institute of Ecosystem Studies
- Unearthing the environmental, host, and nontuberculous mycobacterial factors that interact to cause lung disease in the Hawaiian Islands <https://www.nsf.gov/awardsearch/showAward?

AWD_ID=1743587&HistoricalAwards=false> , Michael Strong, National Jewish Health

- Spatial eco-epidemiology of tick-borne Rickettisial pathogens <https://projectreporter.nih.gov/project_info_description.cfm?aid=9454606> , Holly Gaff, Old Dominion University
- Impacts of the African origin of Plasmodium vivax on contemporary parasite populations <https://projectreporter.nih.gov/project_info_description.cfm?aid=9454746> , Jonathan Juliano, University of North Carolina Chapel Hill
- Evolution of transmission in Tasmanian devils and their infectious cancer <https://projectreporter.nih.gov/project_info_description.cfm?aid=9456844&icde=36055373> , Andrew Storfer, Washington State University
- Multi-host, multi-pathogen interactions in invaded communities: The consequences of emerging infectious disease of a rapidly expanding grass, Erica Goss, University of Florida
- A specialist-generalist framework for viral transmission in salmon of the Northwest, Kerry Naish, University of Washington

-NSF-

Media Contacts
Rob Margetta, NSF, (703) 292-2663, rmargett@nsf.gov (mailto:rmargett@nsf.gov)

The National Science Foundation (NSF) is an independent federal agency that supports fundamental research and education across all fields of science and engineering. In fiscal year (FY) 2018, its budget is $7.8 billion. NSF funds reach all 50 states through grants to nearly 2,000 colleges, universities and other institutions. Each year, NSF receives more than 50,000 competitive proposals for funding and makes about 12,000 new funding awards.

Useful NSF Web Sites:
NSF Home Page: https://www.nsf.gov <https://www.nsf.gov>
NSF News: https://www.nsf.gov/news/ (/news/)
For the News Media: https://www.nsf.gov/news/newsroom.jsp (/news/newsroom.jsp)
Science and Engineering Statistics: https://www.nsf.gov/statistics/ (/statistics/)
Awards Searches: https://www.nsf.gov/awardsearch/ (/awardsearch/)