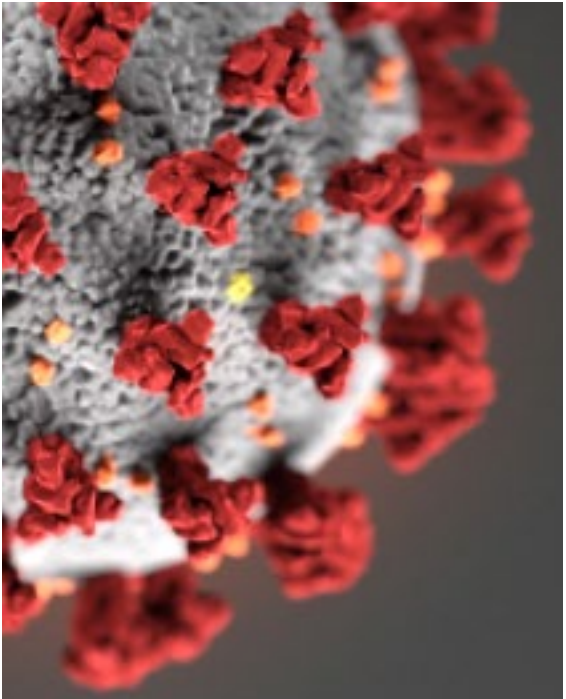


COVID-19 RESPONSE FUNDING UPDATE

June 19-25, 2020

FACTS

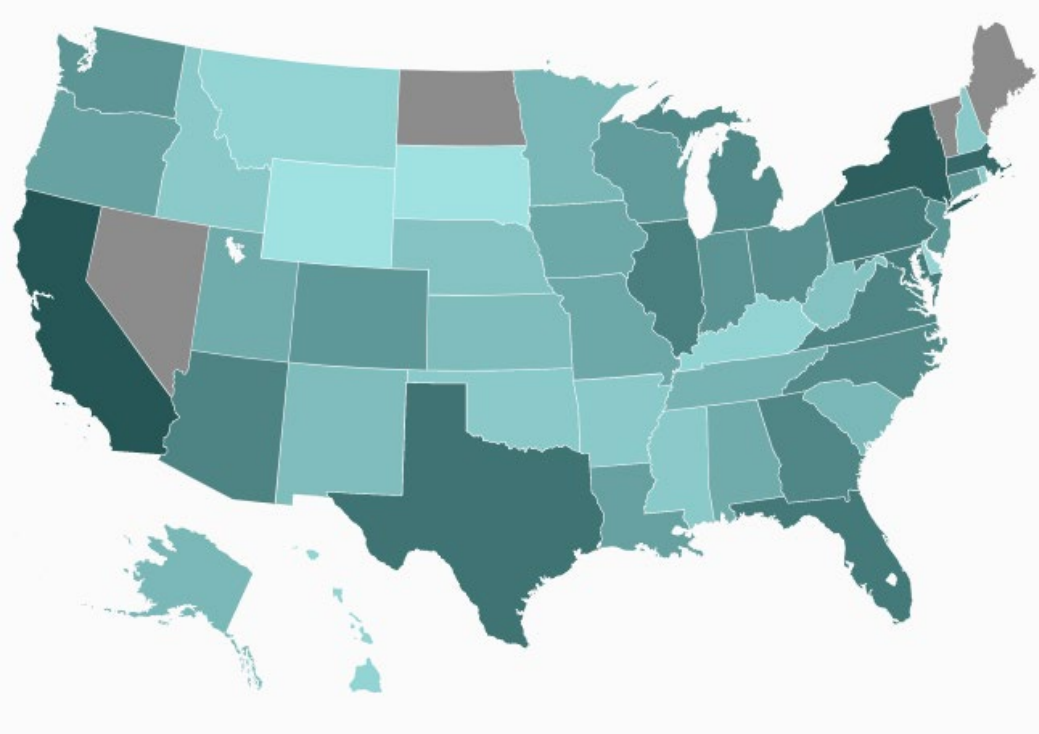
$111,233,263
Funds Mobilized

801 Grants Funded

OVERVIEW

In response to the COVID-19 virus, the National Science Foundation (NSF) is mobilizing funding from the FY2020 budget and supplemental appropriations through the Coronavirus Aid, Relief, and Economic Security (CARES) Act. CARES Act funding supports a wide range of research areas to help the country fight and recover from the COVID-19 crisis through several research funding mechanisms, including Rapid Response Research (RAPID), a fast-tracked grant process to accelerate critical discoveries.

AWARDS



COVID-19 related awards by state, shade of blue correlates to number of awards.

	CARES Act	All COVID-19
Number of Awards	504	801
Funding Deployed	$72,693,798	$111,233,263

This update spotlights several recent awards, just a snapshot of the essential work NSF is funding through the CARES Act and FY2020 appropriations. You can explore all of the COVID-19 related research grants awarded through the National Science Foundation at this link.

DIVISION OF COMPUTER AND NETWORK SYSTEMS
CARES ACT $100,000

Title RAPID: Algorithms and Heuristics for Remote Food Delivery under Social Distancing Constraints

Institution Carnegie Mellon University; Pittsburgh, PA

What This goal of this project is to optimize processes for remote meal delivery to vulnerable populations of low-income students and seniors who generally receive food at schools, shelters, and food banks. New algorithms and heuristics will address unique challenges of geographically dispersed food delivery within new social distancing constraints.

Why Public health and social distancing constraints demand new optimization solutions for remote food delivery. This research will offer insight and, through existing relationships with the Allegheny County Department of Human Services, Southwestern Pennsylvania United Way, and Allies for Children and the Greater Pittsburgh Food Bank, the project will apply research results to inform ongoing pilot food delivery efforts.

DIVISION OF INTEGRATIVE ORGANISMAL SYSTEMS
CARES Act $199,699

Title RAPID: Aerosol and Direct Transmission of SARS-CoV-2 in Bats and other Animals

Institution University of Utah; Salt Lake City, UT

What This research will lead to a better understanding of how and why SARS-CoV-2 transmission occurs through direct routes in species like bats but may occur through airborne routes in species like hamsters, deer mice, and humans.

Why Transmission to and among different host species could allow the SARS-CoV-2 virus to evolve and become more virulent, create new viral reservoirs, or increase the spread of disease with major economic and ecological ramifications. Understanding the mechanisms that allow transmission in different hosts is critical to mitigating these effects.

DIVISION OF CHEMICAL, BIOENGINEERING, ENVIRONMENTAL, AND TRANSPORT SYSTEMS

FY2020 $199,994

Title RAPID: Understanding SARS-CoV2 transmission through a novel continuous monitoring system

Institution Tulane University; New Orleans, LA

What This project will investigate transmission through direct and indirect contact using a novel non-invasive monitoring system. The system will continuously capture data such as body temperature, head-body distance, activity patterns and breathing sounds. Algorithms will identify meaningful disease patterns in the data to help stage progression of COVID-19.

Why Critical knowledge about transmission of the virus that causes COVID-19—for example, how soon an infected individual can transmit the virus to another person via direct or indirect contact—remains unknown. The data obtained from this research will help identify such meaningful patterns.

DIVISION OF INFORMATION AND INTELLIGENT SYSTEMS

CARES ACT $199,736

Title RAPID: Learning from the Experiences of COVID-19 Survivors

Institution Dartmouth College; Hanover, NH

What Researchers are building data collection platforms to gather information from a broad population of people, including a focus on African-Americans, affected by COVID-19. They are also developing computational and analytical tools that will be able to draw important and novel insights about the impacts of COVID-19 on survivors' lives.

Why This approach helps maximize what we know about COVID-19 and how it affects diverse people and communities by focusing on wide-scale data collection and finding new ways to draw conclusions from that data that can inform people and public health decisions.

DIVISION OF MOLECULAR AND CELLULAR BIOSCIENCES

CARES Act $199,842

Title	Collaborative Research: RAPID: Molecular underpinnings that define volatile compound signature of the lung
Institutions	Rush-Presbyterian-St. Luke's Medical Center; Chicago, IL Illinois Institute of Technology; Chicago, IL
What	This project seeks to determine the cause of and, using analytical devices, measure the molecular composition of volatile organic compounds (VOCs) released by infected bronchial epithelial cells in individuals with COVID-19.
Why	Fundamental knowledge of the biological mechanisms that generate VOC signals in viral infected lung cells and engineering tools and instrumentation that can capture and analyze the VOCs could provide guidance for design of rapid, non-invasive, point-of-care tests that can detect SARS-CoV-2 infection in the US population.

DIVISION OF CHEMISTRY

FY2020 $200,000

Title	RAPID: Collaborative Research: Mathematical tools for analysis of genomic diversity of SARS-CoV-2 virus in the context of its co-evolution with host populations
Institutions	Pennsylvania State University- University Park; State College, PA University of North Carolina Greensboro; Greensboro, NC
What	Researchers are exploring a new, more accurate, and inexpensive method for rapidly detecting small amounts of virus that works by attaching nanoparticles to the outside of the virus that then enable detection by a novel 3-D printed sensor.
Why	Testing continues to be an important tool for understanding, tracking, and controlling the spread of COVID-19. Research like this can help improve testing capacity by increasing efficiency and reducing cost.

Related NSF Research News

- NSF Science Matters Blog: Ocean research in the time of COVID-19: Expedition to the Gulf of Alaska keeps vital research and data collection on course
- News Tribune: University of Missouri System researchers take on new projects during COVID-19 pandemic