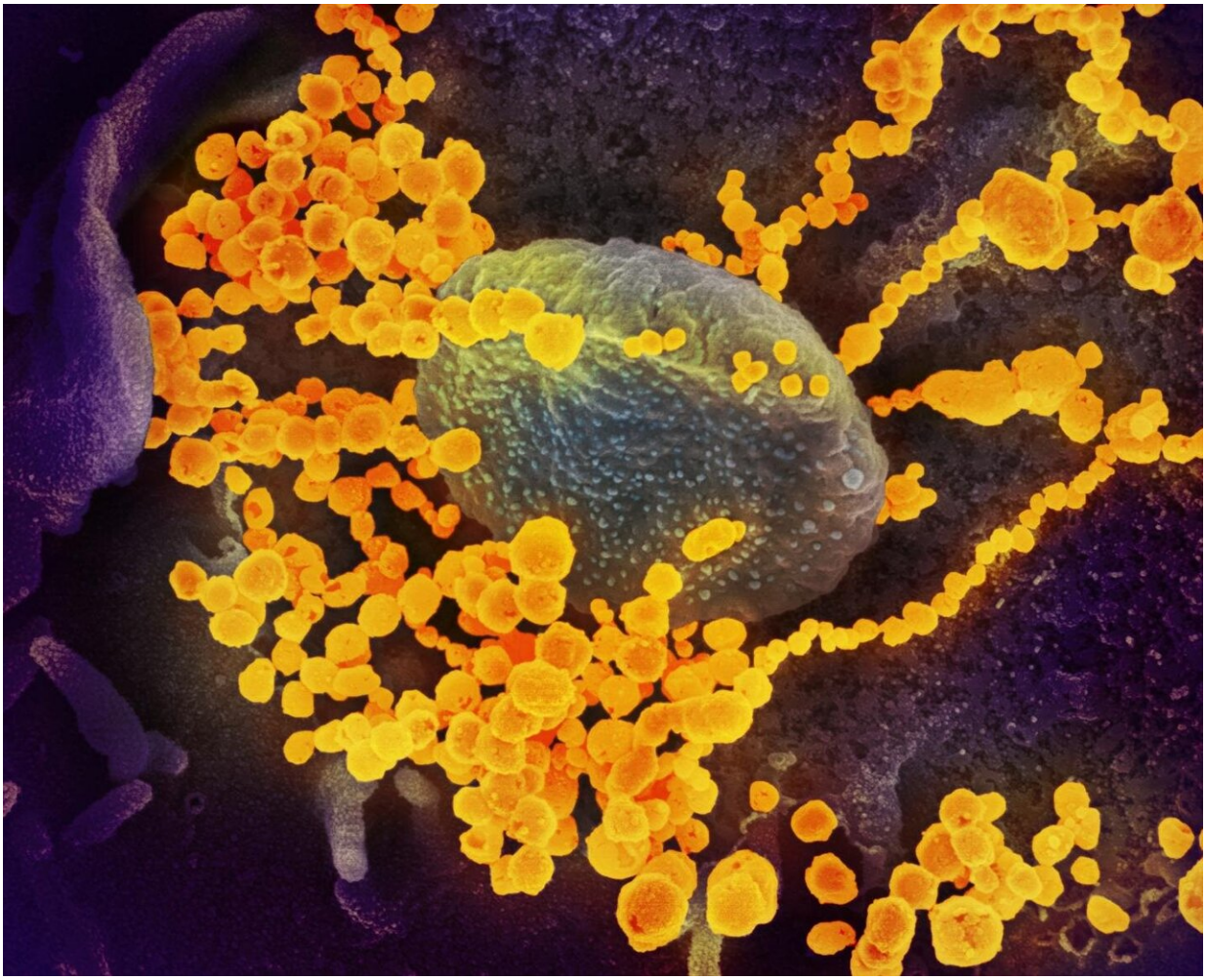
NIAID strategic plan details COVID-19 research priorities

April 23 2020



Scanning electron microscope image shows SARS-CoV-2 (round gold objects) emerging from the surface of cells cultured in the lab. SARS-CoV-2, also known as 2019-nCoV, is the virus that causes COVID-19. The virus shown was isolated from a patient in the U.S. Credit: NIAID-RML

Urgent public health measures are needed to control the spread of the novel coronavirus (SARS-CoV-2) and the disease it causes, coronavirus disease 2019, or COVID-19. Scientific research to improve our understanding of the virus and how it causes disease, and to develop strategies to mitigate illness and death, is of paramount importance. A new strategic plan from the National Institute of Allergy and Infectious Diseases (NIAID), part of the National Institutes of Health, details the institute's plan for accelerating research to diagnose, prevent and treat COVID-19.

The *NIAID Strategic Plan for COVID-19 Research* has four key priorities. The first involves improving fundamental knowledge of SARS-CoV-2 and COVID-19, including studies to characterize the virus and better understand how it causes infection and disease. This research includes natural history, transmission and surveillance studies to determine why some individuals experience mild symptoms of infection while others become critically ill. The role of asymptomatic individuals in viral spread and the potential seasonality of viral circulation also need to be explored, according to the report. Additionally, small and large animal models that can recapitulate COVID-19 disease seen in humans must be developed.

NIAID's second research priority is the development of rapid, accurate diagnostics and assays to identify and isolate COVID-19 cases and track the spread of the virus. Molecular assays can detect low levels of SARS-CoV-2 and differentiate it from other related viruses. Researchers will work to improve the speed and accuracy of these diagnostic assays to mitigate the spread of the disease during the current outbreak and any future ones. Additionally, new and improved serologic assays to detect antibodies to the virus must be developed to enhance surveillance efforts and identify individuals who may have resolved a previous COVID-19

infection.

The third research priority is characterizing and testing potential treatments for COVID-19. These efforts will include identifying and evaluating drugs already approved for other conditions that could be repurposed to treat COVID-19 and testing novel broad-spectrum antivirals, such as remdesivir; virus-targeted antibody-based therapies; monoclonal antibodies; and host-directed strategies to target an individual's immune response to the virus. To optimize findings during the pandemic, multiple clinical trials will be conducted in parallel among various patient populations, including hospitalized people and outpatients.

NIAID's fourth research priority is to develop safe and effective vaccines to protect individuals from infection and prevent future SARS-CoV-2 outbreaks. NIAID researchers and their collaborators are adapting vaccine candidates and approaches previously employed to address the related Middle East respiratory syndrome (MERS) and severe acute respiratory syndrome (SARS) coronaviruses and applied them to the current pandemic. For example, NIAID recently launched a Phase 1 clinical trial using a vaccine platform initially developed to target MERS. NIAID will use its broad clinical trial infrastructure to advance experimental vaccines through Phase 1 safety and dosing testing and simultaneously plan for advanced clinical testing of the most promising candidates. The institute will work with government partners to ensure that any safe and effective vaccine will be manufactured in sufficient quantities to allow expedient distribution to those at highest risk for infection.

To achieve its four priorities, NIAID will build on its current resources, research programs, clinical trials networks and collaborations with other U.S. government agencies and other key U.S. and global partners. The new strategic plan aligns with priorities set by the White House

Coronavirus Task Force and represents a comprehensive and coordinated effort to develop effective biomedical tools to combat COVID-19.

More information: *NIAID Strategic Plan for COVID-19 Research*: www.niaid.nih.gov/sites/defaul … ategic-Plan-2020.pdf

Provided by NIH/National Institute of Allergy and Infectious Diseases