National Institute of Allergy and Infectious Diseases (/)

NIAID's Research Response to COVID-19

Funding News Edition: **April 15, 2020**
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NIAID is investigating multiple SARS-CoV-2 vaccine strategies, including technologies that have shown promise against coronaviruses that cause Severe Acute Respiratory Syndrome and Middle East Respiratory Syndrome.

Credit: NIAID

As the spread of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and the rise in cases of coronavirus disease 2019 (COVID-19) continue, so too do NIAID's efforts to help stem the tide of the outbreak. In leading the U.S. government's biomedical research response to the pandemic, the Institute is engaged in a multitude of activities focused on vaccine and therapeutic development as well as other priority areas. We provide a brief overview of them here.

Note: If you are interested in applying for funding opportunities, see our April 1, 2020 article "Updates on NIAID Funding for SARS-CoV-2/COVID-2019 Research (https://www.niaid.nih.gov/grants-contracts/updates-niaid-funding-coronavirus-research)" and our Funding Opportunities (https://www.niaid.nih.gov/grants-contracts/opportunities) list. For additional COVID-19-related details, see Coronaviruses: Information for Researchers (https://www.niaid.nih.gov/diseases-conditions/coronaviruses?researchers=true) on our website and NIH's COVID-19: Information for NIH Applicants and Recipients of NIH Funding (https://grants.nih.gov/policy/natural-disasters/corona-virus.htm) .

Vaccines

NIAID is investigating multiple SARS-CoV-2 vaccine strategies, including technologies that have shown promise against coronaviruses that cause Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS).

Phase 1 Clinical Trial

NIAID, in partnership with the biotechnology company Moderna, Inc., used a messenger RNA (mRNA) platform to develop a candidate vaccine, mRNA-1273, for SARS-CoV-2. A Phase 1 clinical trial launched last month at Kaiser Permanente Washington Health Research Institute, one of the NIAID clinical research sites. Soon after, Emory University in Atlanta began enrolling volunteers. To learn more, read the following:

- March 16, 2020 NIAID News Release "NIH Clinical Trial of Investigational Vaccine for COVID-19 Begins (https://www.niaid.nih.gov/news-events/nih-clinical-trial-investigational-vaccine-covid-19-begins)"

- March 27, 2020 NIAID News Release "Atlanta Site Added to NIH Clinical Trial of a Vaccine for COVID-19 (https://www.niaid.nih.gov/news-events/atlanta-site-added-nih-clinical-trial-vaccine-covid-19)"
- ClinicalTrials.gov Safety and Immunogenicity Study of 2019-nCoV Vaccine (mRNA-1273) for Prophylaxis SARS CoV-2 Infection (https://clinicaltrials.gov/ct2/show/NCT04283461)

Additional Vaccine Development Studies

NIAID-supported scientists at Baylor College of Medicine and their collaborators are evaluating an experimental SARS-CoV recombinant protein vaccine to determine if it provides protection against SARS-CoV-2.

Scientists at the NIAID Rocky Mountain Laboratories (RML) in Montana are building on previous research to develop a MERS-CoV vaccine by collaborating with Oxford University investigators to develop a SARS-CoV-2 vaccine using a chimpanzee adenovirus vaccine vector.

Our RML investigators are also partnering with the biopharmaceutical company CureVac on an mRNA vaccine candidate and collaborating with the University of Washington on an RNA vaccine candidate.

Therapeutics

NIAID is pursuing the development and testing of SARS-CoV-2 antivirals, monoclonal antibodies, and other therapeutic candidates.

As announced in the February 2020 NIAID News Release "NIH Clinical Trial of Remdesivir To Treat COVID-19 Begins (https://www.niaid.nih.gov/news-events/nih-clinical-trial-remdesivir-treat-covid-19-begins)," the Institute launched a randomized controlled clinical trial to evaluate the safety and efficacy of the antiviral drug remdesivir (GS-5734) for treating COVID-19 in hospitalized adults. The study can be adapted to evaluate additional investigational treatments.

The clinical trial builds on recent work by NIAID scientists showing that remdesivir can improve disease course in rhesus macaques when administered promptly after viral challenge with MERS coronavirus.

The Institute is also expanding its preclinical services to investigators in academia and industry to assess promising candidates and facilitate their development. These services are focused on helping a wide variety of investigators obtain critical data necessary to complete clinical studies and advance development of potential vaccines and therapeutics.

For details on the remdesivir trial, see ClinicalTrials.gov Adaptive COVID-19 Treatment Trial (ACTT) (https://clinicaltrials.gov/ct2/show/NCT04280705) .

Reagents

NIAID is sourcing reagents, including viral isolates for the research community and placing them in our repositories to help accelerate research and countermeasure development. These reagents have helped expand diagnostic capacity, providing a means for diagnostic developers to validate that their tests correctly identify SARS-CoV-2 genetic material.

Viral isolates and COVID-19 research reagents are available through BEI Resources (https://www.beiresources.org/Home.aspx) . Materials are also being made available through the World Reference Center for Emerging Viruses and Arboviruses (https://www.utmb.edu/wrceva/home) .

Animal Models

NIAID intramural and extramural laboratories are conducting research to assess different animal models that replicate SARS-CoV-2 pathogenesis. Developing animal models that recapitulate human disease is a vital early step toward understanding disease pathogenesis and testing medical countermeasure efficacy.

The Institute is also developing new preclinical service programs for the extramural research community for small and large animal model development and countermeasure evaluation in animals.

Additionally, NIAID published a Notice of Special Interest (NOSI) Regarding the Availability of Emergency Competitive Revisions for Research on Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) and Coronavirus Disease 2019 (COVID-19) (https://grants.nih.gov/grants/guide/notice-files/NOT-AI-20-034.html) . NIAID is particularly interested in projects focusing on viral natural history, pathogenicity, transmission, as well as projects developing medical countermeasures and suitable animal models for preclinical testing of vaccines and therapeutics against SARS-CoV-2/COVID-19.

Keep Current on COVID-2019 Activities

For timely information on NIAID's research efforts in this area, check our Newsroom (https://www.niaid.nih.gov/news-events/newsroom) for items such as News Releases (https://www.niaid.nih.gov/news-events/news-releases) and stay tuned to this newsletter.

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