NIAID

# NIAID International Research Activities FY 2020 Middle East and North Africa (MENA) Region

## About NIAID

The National Institute of Allergy and Infectious Diseases (NIAID), part of the U.S. National Institutes of Health (NIH), conducts and supports basic and clinical research to better understand, treat, and prevent infectious, immunologic, and allergic diseases. For more than 60 years, NIAID research has led to new therapies, vaccines, diagnostics, and preventive strategies that have improved the health of millions of people in the United States and around the world.

NIAID defines the Middle East and North Africa (MENA) region to include the following countries: Algeria, Bahrain, Cyprus, Djibouti, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Qatar, Saudi Arabia, Somalia, Sudan, Syria, Tunisia, United Arab Emirates, and Yemen.

**Figure 1. Countries With NIAID-Funded Research**


## Research Priorities

NIAID supports research on infectious diseases prevalent to the region including Middle East respiratory syndrome coronavirus (MERS-CoV) and SARS-CoV-2. Other research priorities in this region include Alkhurma hemorrhagic fever, Crimean-Congo hemorrhagic fever, influenza, hepatitis, leishmaniasis, the genetic basis of human immunodeficiency and immunoregulation disorders, vector-borne diseases, and the microbiome.

## Regional Projects

NIAID supported 21 research activities in nine MENA countries during fiscal year 2020 (Figure 1). Total NIAID international health research funding in the MENA region was $2.9 million.

## Countries With NIAID-Funded Research

Egypt
Israel
Kuwait
Lebanon
Morocco
Qatar
Saudi Arabia
Tunisia
United Arab Emirates

## Selected NIAID Regional Programs

In 2020, NIAID launched the **NIAID MENAT initiative,** an effort to strengthen scientific collaboration between the United States and the Middle East, North Africa, and Turkey (MENAT) scientific communities. A Regional Advisory Panel (RAP) was established to advise on MENAT scientific priorities, with Dr. Mohamed H. Sayegh, the senior advisor on Research in the Middle East and North Africa, Office of the Principal Deputy Director, serving as the RAP chair. The other RAP members represent Egypt, Lebanon, Saudi Arabia, Tunisia, United Arab Emirates, and Turkey. The initiative aims to promote scientific exchange and networking, explore opportunities for collaboration, and foster research partnerships involving U.S. and MENAT scientists. One way that NIAID is meeting these goals is by developing and conducting focus group meetings and scientific workshops in the MENAT region in areas such as antimicrobial resistance, asthma/allergy, immunology, autoimmunity, infections in migrant populations and mass gatherings, viral infections, pandemics, HIV/AIDS, tuberculosis (TB), vector-borne diseases, and other infections relevant to the MENAT region.

**Accelerating COVID-19 Therapeutic Interventions and Vaccines (ACTIV)** is a public-private partnership to develop a coordinated research strategy for prioritizing and speeding the development of the most promising treatments and vaccines for COVID-19. The ACTIV-3 clinical trial, which includes sites in the MENA region, is evaluating the safety and efficacy of investigational therapeutics for COVID-19 in hospitalized patients.

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Launched in 2013, the **Antibacterial Resistance Leadership Group** (**ARLG**) aims to prioritize, design, and execute clinical research that will affect the prevention, diagnosis, and treatment of infections caused by antibiotic-resistant bacteria. ARLG involves collaborations in 19 countries worldwide.

The **Centers for AIDS Research** (**CFAR**) program provides administrative and shared research support to synergistically enhance and coordinate high-quality AIDS research projects. CFARs accomplish this through core facilities that provide expertise, resources, and services not otherwise readily obtained through more traditional funding mechanisms.

The **Centers of Excellence for Influenza Research and Response** (**CEIRR**) program is an integrated network of centers that aims to study the natural history, transmission, and pathogenesis of influenza and provide an international research infrastructure to address influenza outbreaks.

## NIAID Office of Global Research (OGR)

OGR facilitates and coordinates NIAID's international activities and collaborative research programs. OGR works closely with other NIH Institutes and Centers, offices and agencies of the U.S. Department of Health and Human Services, and numerous foreign government agencies.

Department of Health and Human Services
National Institutes of Health
ATTN: NIAID Office of Global Research
5601 Fishers Lane, MSC 9802
Bethesda, MD 20892–9802 USA
Tel: 301-496-0070, Fax: 301-480-2954
Email: niaidogrppc@niaid.nih.gov
https://www.niaid.nih.gov/research/global-research

**Holly Curtis,** Acting Regional Officer

### Selected NIAID-Supported Science Advances

- Investigators from Israel, Europe, and the United States used CRISPR technology to screen for genes that provide protection against Zika virus infection. Interferon-stimulated genes were shown to have antiviral activity and rescued the cell from infection or protected against virus-induced cell death. Some of the genes identified had previously been shown to confer protection against other viruses. However, there was no overlap in genes conferring protection when compared with a similar screen conducted for influenza. A deeper understanding of the host response against Zika virus infection will help to identify antiviral targets and inform the development of new therapeutics.

- Astroviruses are zoonotic diseases that can cause gastroenteritis in humans. Investigators conducted a surveillance study in Egypt to identify astroviruses that are circulating in bats, wild birds, and humans. Astroviruses were present in approximately 28% of children with gastroenteritis and were associated with severe dehydration. Similar prevalence was found for bats (27.5%) and wild birds (26.6%), which are known reservoirs of astroviruses. There was a close phylogenetic relationship between viruses found in the various hosts, indicating there may be cross-species transmission among humans, bats, and wild birds.