Emerging infectious diseases vaccines

IAVI is applying its extensive vaccine development expertise and working with a group of expert international partners to develop vaccines to prevent emerging infectious diseases (EIDs).

A platform approach to EID response

The coronavirus pandemic that emerged in 2019 and ongoing, intermittent outbreaks of Ebola, Lassa, and Marburg virus diseases in sub-Saharan Africa demonstrate the urgent need for vaccines for outbreak pathogens. IAVI has a robust vaccine pipeline to address such challenges.

IAVI’s EID vaccine platform includes four vaccine candidates to prevent diseases of global importance: coronavirus disease 2019 (COVID-19), Lassa fever, Marburg virus disease, and Ebola Sudan virus disease. Additional COVID-19 vaccines, particularly those suitable for widespread use in low-income countries, continue to be an urgent need, and the U.S. Centers for Disease Control and Prevention has classified the viruses that cause the other diseases as high-priority agents that pose a risk to national security. They have high case fatality rates, and in addition to being epidemic threats, they have potential to be used for bioweapons.

IAVI’s EID vaccine candidates are based on a recombinant vesicular stomatitis virus (rVSV) vector similar to the technology underlying Merck’s highly effective Ebola Zaire virus vaccine, ERVEBO®, which is now registered for use in several African countries.

Nonclinical research by IAVI on the COVID-19 vaccine candidate is supported by the Defense Threat Reduction Agency (DTRA) of the U.S. Department of Defense (DoD). The Government of Japan supports IAVI’s COVID-19 vaccine program.

One of the major countermeasures that we have to address EIDs is the development, rapidly and efficiently, of vaccines against these pathogens.

Anthony Fauci, M.D., director, U.S. National Institute of Allergy and Infectious Diseases

EIDs by the numbers

- **50%** average case fatality rate for Ebola virus and Marburg virus disease
- **100,000–300,000** cases of Lassa fever occur annually
- **15%** average case fatality rate for people hospitalized with Lassa fever
- **> 530 million** confirmed cases of COVID-19 in 29 months
- **100%** efficacy for the rVSV-vectored Ebola Zaire virus vaccine in a Phase III trial
- **3** IAVI EID vaccines in preclinical development; 1 in clinical development

Sources available at iavi.org/fact-sheets-sources
IAVI’s rVSV EID platform

- Based on highly efficacious Ebola Zaire vaccine technology
- State-of-the-art modular manufacturing for vaccine production
- Reduced infrastructure requirements and streamlined low-cost production of multiple vaccines
- A new solution for vaccine production during unpredictable EID outbreaks

IAVI’s Vaccine Design and Development Lab

Much of the research and development on IAVI’s rVSV platform is performed at IAVI’s Vaccine Design and Development Lab (DDL) in Brooklyn, New York. The DDL is located at the bioscience center in the historic Brooklyn Army Terminal. Since its founding in 2008 the DDL has become one of the world’s leading viral vector vaccine research and development labs, known for innovation and generation of novel vaccine design concepts.

The DDL’s Biosafety Level (BSL) 2 laboratories are outfitted for molecular cloning, cell culture, virology, protein chemistry, and immunology research.

IAVI’s EID vaccine candidates

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<thead>
<tr>
<th>Vaccine</th>
<th>Funder/partner</th>
<th>Stage</th>
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<tbody>
<tr>
<td>Lassa Fever Virus</td>
<td>CEPI; EDCTP</td>
<td>Phase I</td>
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<tr>
<td>rVSVΔG-LASV-GPC*</td>
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<td>SARS Coronavirus 2**</td>
<td>Government of Japan; U.S. DTRA/DoD</td>
<td>Preclinical</td>
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<tr>
<td>rVSVΔG-SARS-CoV-2</td>
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<td>Marburg Virus</td>
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<td>rVSVΔG-MARV-GP*</td>
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<tr>
<td>Ebola Sudan Virus</td>
<td>BARDA</td>
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<td>rVSVΔG-SUDV-GP*</td>
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