Emerging infectious diseases vaccines

Translating **science** into **global** health impact

> 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 proven platform approach to global health security

New medical countermeasures against EIDs are a priority for global health security. Most EIDs are zoonotic, meaning they originated in vertebrate animals and "jumped" to humans through a complex biological process known as spillover[1]. Spillover events are increasing over time, and if trends continue, the next pandemic will most likely be caused by a zoonotic virus[2].

Since 2018, IAVI has been pursuing the development of EID vaccines, building on more than two decades of experience and international collaboration in HIV vaccine development. Today, our EID vaccine platform includes single-dose vaccine candidates to prevent zoonotic diseases caused by three priority pathogens: Lassa virus, Marburg virus, and Sudan virus (a cousin to Ebola virus). These viruses have high case fatality rates, cause repeated outbreaks, and are likely to cause public health emergencies of international concern.

Using proven vaccine technology can accelerate vaccine development for outbreak pathogens[3]. IAVI's EID vaccine candidates are based on a recombinant vesicular stomatitis virus (rVSV) vector similar to the technology underlying Merck's Ebola virus vaccine, ERVEBO®, which is approved by the U.S. FDA and registered in more than a dozen countries.

> Zoonotic spillover events in West Africa are estimated to at least double by 2070, owing to a constellation of interrelated factors.[4]

[1] https://www.nature.com/articles/nature06536
[2] https://pubmed.ncbi.nlm.nih.gov/18288193
[3] https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(23)00328-5/fulltext
[4] https://www.nature.com/articles/s41467-022-33112-3

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

600%
increase in the number of people exposed to Lassa virus by 2070[4]

100%
efficacy for Merck's rVSV-based Ebola Zaire vaccine (ERVEBO®) in a Phase 3 trial, the technology for which is the basis of IAVI's VSV platform

3
IAVI EID vaccines in the product development pipeline

IAVI's rVSV EID vaccine platform

- Based on licensed Ebola vaccine technology.
- Elicits an immune response in just one dose.
- State-of-the-art modular manufacturing for vaccine production.
- Reduced infrastructure requirements and streamlined, low-cost production suitable for unpredictable EID outbreaks.
- Potential for multivalent EID vaccine development.

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 Jersey City, New Jersey. 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

Vaccine	Funder/partner	Stage	Status
Lassa virus rVSVΔG-LASV-GPC*	Coalition for Epidemic Preparedness Innovations (CEPI); European & Developing Countries Clinical Trials Partnership (EDCTP)	Phase 2	European Medicines Agency Priority Medicines status; 2025
Marburg virus rVSVΔG-MARV-GP*	Biomedical Advanced Research and Development Authority (BARDA); U.S. Department of Defense – Defense Threat Reduction Agency	Phase 1	Short-listed by WHO for ring vaccination in Uganda; 2024
Sudan virus rVSVΔG-SEBOV-GP*	Biomedical Advanced Research and Development Authority (BARDA)	Phase 1	Prioritized by WHO for evaluation in ring vaccination trial in Uganda; 2022. Deployed in efficacy ring vaccination trial in Uganda in response to outbreak; 2025.
Sudan virus rVSVΔG-SUDV-GP*	Biomedical Advanced Research and Development Authority (BARDA)	Phase 1	Being evaluated at sites in the U.S.

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