



**Unique DoD Mission:** premier medical biological defense laboratory providing end to end leading edge capabilities to deter and defend against current and emerging biological threat agents, as the largest Biosafety Level 3 and 4 containment laboratory in the Department of Defense and the Nation.

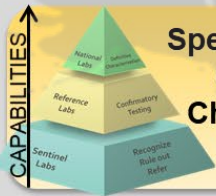
## Expansive Mission

Global Mission /  
Geographic Combatant  
Commander Support

Reach back capability with  
world renowned subject matter  
expertise

Only DoD BSL4 Laboratory,  
National Laboratory within CDC  
Laboratory Response Network

Special Pathogen Lab  
Confirmation &  
Characterization of  
unknowns



## Threat Assessment Platform

### Assess the Threat

- Surveillance**
  - Intelligence agencies • Field hospitals • CDC • Laboratory Response Network
- Train & Educate the Force**
  - Operational forces • International partners • Academia • First responders
- Pathogen Isolation**
  - Preparation of master stock • Distribution of master stocks

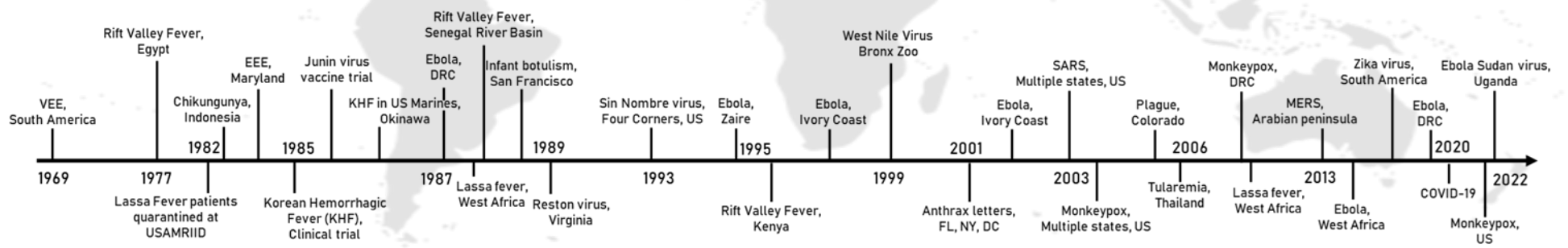
### Develop the Tools

- Pathogen Characterization**
  - Pathogenicity • Transmissibility • Molecular Epidemiology
- Diagnostic Development**
  - Immunological • Molecular • Reagent quantification • Next generation sequencing
- Animal Model Development**
  - Isolate • Species • Dose • Route • Pathology

### Evaluate the Countermeasure

- Medical Countermeasure Development**
  - Biologic • Small molecule • High throughput screening
- Vaccine Testing and Evaluation**
  - Vector-based vaccine • Nucleic acid-based vaccine • Protein-based vaccine
- Therapeutic Testing and Evaluation**
  - Proof of concept • Efficacy • Animal rule • Support FDA approval

## USAMRIID Responds





## Global Network



- ✓ Geographic Combatant Commander support
- ✓ Globally-connected subject matter expertise
- ✓ Outbreak detection & response
- ✓ Pathogen standardized stocks and reagent sharing with domestic and international partners



usamriid.health.mil



## Infrastructure & Capabilities

- Large collection of Biosafety Level 3 (containment) & BSL-4 (maximum containment) laboratory space
- BSL-4 clinical laboratory
- Fully accredited animal research facilities (BSL 2, 3, and 4)
- Expertise in aerosol testing & evaluation of vaccines and therapeutics
- Diagnostic reference laboratory accredited to ISO 17025 and CLIP standards
- Specialized training courses in medical management of biological casualties (MMCBC) and field identification of biological warfare agents (FIBWA)



## Diagnostics



- ✓ Lab Response Network
- ✓ Special Pathogens Lab
- ✓ Over 400 assays on hand
- ✓ 72 pre-EUA packets on file with US FDA for biothreat & public health emergency preparedness
- ✓ Agile threat agnostic development pipeline for molecular and immunodiagnostic tools



## L.I.M.I.T.

Layered and Integrated Medical Intervention Technologies

### Next Gen Antivirals

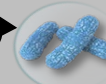
MBP134

Treat 5/25

ZMapp

### Antibacterial Layered Defense

Vaccine or Antibiotic alone



Vaccine + Antibiotic



## Outbreak Response



### Monkeypox

USAMRIID developed:

- ✓ ACAM2000 vaccine
- ✓ JYNNEOS vaccine
- ✓ Antiviral Tecovirimat (TPOXX)



### SARS-CoV-2

- ✓ USAMRIID developed the patent-pending biosurveillance approach called BMASS for high throughput enhanced COVID-19 screening
- ✓ USAMRIID developed and/or tested vaccines, therapeutics, and diagnostics for Operation Warp Speed



### Ebola

USAMRIID developed:

- ✓ Antiviral Remdesivir
- ✓ Gold standard diagnostic assay
- ✓ VSV vaccine platform



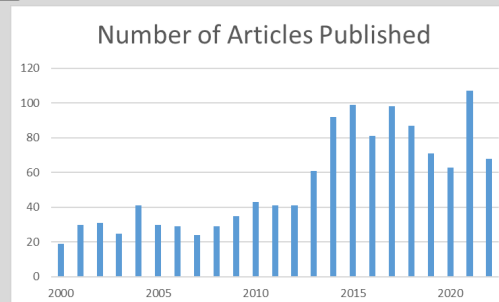
## Collaborations

USAMRIID has over 500 active cooperative agreements with academic, industry, international, and US government partners

- ✓ Defense Threat Reduction Agency
- ✓ National Institutes of Health
- ✓ Defense Advanced Research Projects Agency
- ✓ Univ. of Texas Medical Branch., George Mason University, Albert Einstein College Of Medicine
- ✓ Moderna, Gilead Sciences Inc., Merck, Astra Zeneca, and many more



## Publications



<https://usamriid.health.mil/publicationspage.htm>

