# Biological Defense and Protection

***Detect, characterize,*** and ***respond*** to ***biological threats***.

## National Laboratory Contributions

- Planning response and recovery for an aerosol release
- Operational impact of pandemic flu outbreak modeling
- Rapid biodetection for facility monitoring
- Assessment of government building vulnerabilities and development of response plans for biological attacks
- Rapid detection in food or water supplies
- Identification of biological material sources for bioforensic purposes
- Development of reagents and assays for improved performance of biodetectors
- Development of detection platforms
- Response procedures for biological detection event scenarios

*Potential signatures vary based on the nature of the material.*

## Collaborations

- DOE National Laboratories
- Washington State Department of Health
- Universities (e.g., University of Arizona Biological Design Institute, University of Washington, Washington State University, Oregon Health Sciences University, Texas A&M University)

## Capabilities

### PLANNING AND RESPONDING TO BIOTHREATS

- Hands-on training and education for biothreat understanding, indicators, and handling
- Guidelines for first responders
- Atmospheric modeling
- Scenario modeling
- Requirements definition
- Vulnerability assessment

### BIODETECTORS (STATIONARY AND MOBILE)

- Testing and evaluation of commercial systems
- Integrated systems development

### CHARACTERIZATION AND DISTINGUISHING OF BIOTHREATS

- Laboratory research to understand and treat specific organisms critical to public health
- Select agents and toxins laboratory (e.g., ricin, botulinum toxin)
- Vaccine strains of bacterial agents (e.g., *Bacillus anthracis*, *Yersinia pestis*, *Francisella*)
- Pathogens (e.g., *Norovirus*, *E.coli* O157:H7, *Salmonella, Brucella*)

### INVESTIGATIVE TOOLS

- Experimental design and data analysis
- Sampling strategies
- Tools and methods for analysis
- Processing signatures — source tracking

**For more information, contact:**
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***Science-Based Solutions for Homeland Security***