
U.S. Army Medical Research and Materiel Command: Medical Chemical Biological Defense Research Capabilities



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Commanding General

U.S. Army Medical Research and Materiel Command (USAMRMC)



Outline

- Organizational Overview
- Laboratory Capabilities
- Working with USAMRMC
- Points of Contact



Organization

Program Management

Defense Threat Reduction Agency

Execution

HQ USAMRMC
Frederick, MD

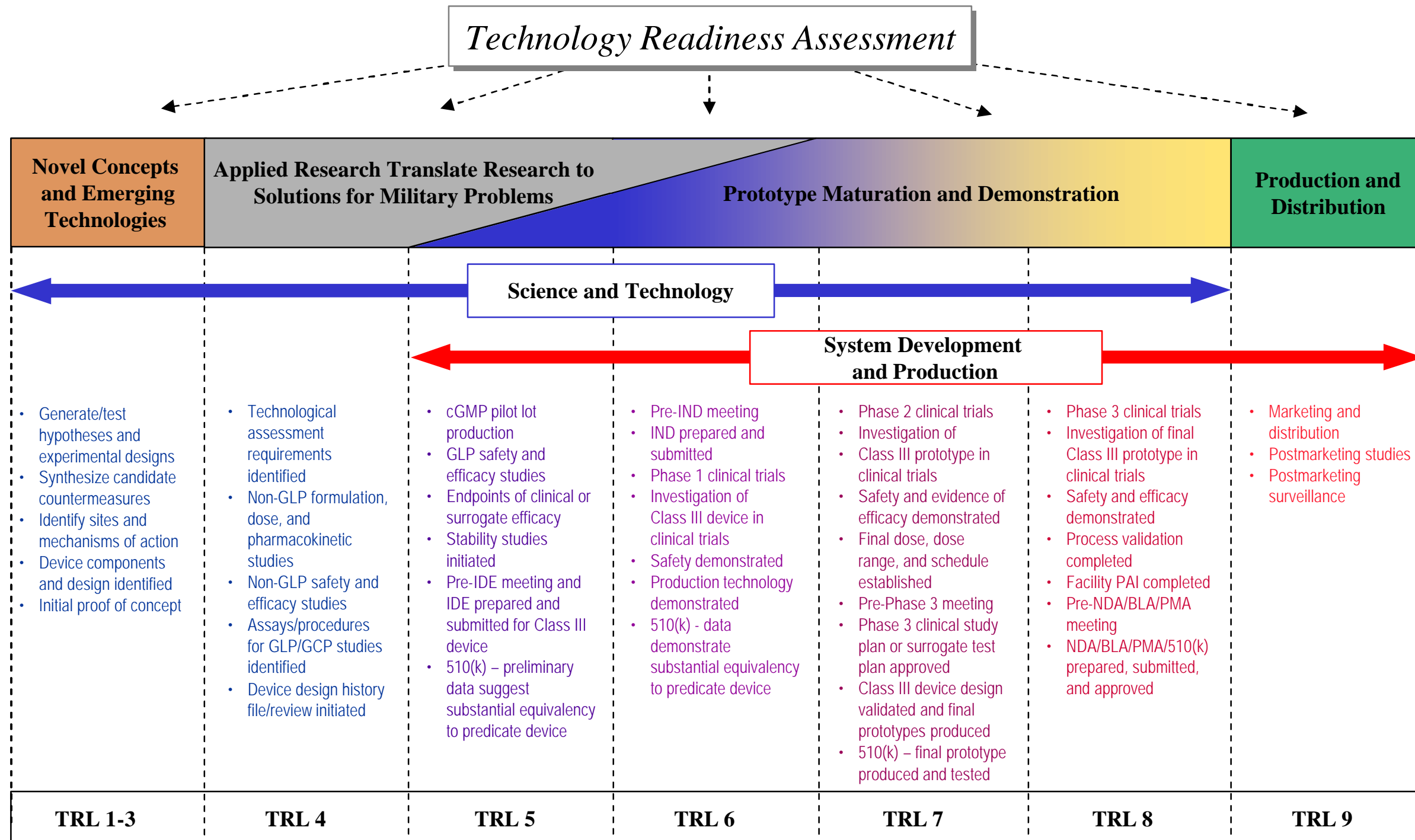
U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID)
Frederick, MD

U.S. Army Medical Research Institute of Chemical Defense (USAMRICD)
Edgewood, MD

Walter Reed Army Institute of Research (WRAIR)
Silver Spring, MD



USAMRMC Chem-Bio Focus: Medical Science and Technology



*TRLs-Technology Readiness Levels.



U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID)



UNIQUE PEOPLE AND EXPERTISE

- 34 years of experience safely handling the world's deadliest pathogens in biocontainment
- Most of the Nation's experts in infectious aerosols work at USAMRIID
- Most of the Nation's subject matter experts on biological threats



FACILITIES

- Aerobiology labs
- Biosafety Level (BSL)-4 labs
- The "Slammer" – The only BSL-4 patient care suite in the Nation



CAPABILITIES

- Large-scale testing and evaluation of medical product evaluation in animal models
- Aerobiology
- Animal Models and Pathogenesis
- Outbreak investigation/support
- Definitive I.D. of new threats/bioforensic analysis

Part of a national system of medical countermeasure development



USAMRIID

Key Role in Interagency Research and Development

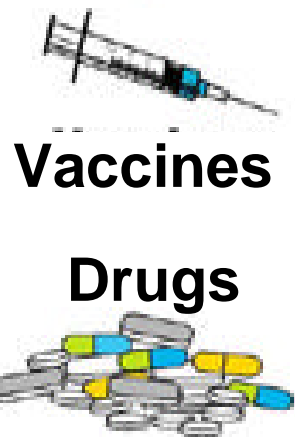
Research



Product Testing



Development



Efficacy Testing

Pharma Industry

USAMRIID's Unique Strengths

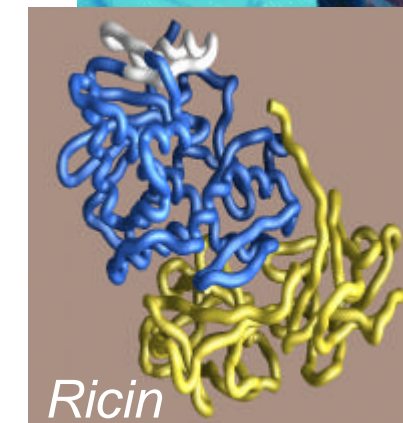
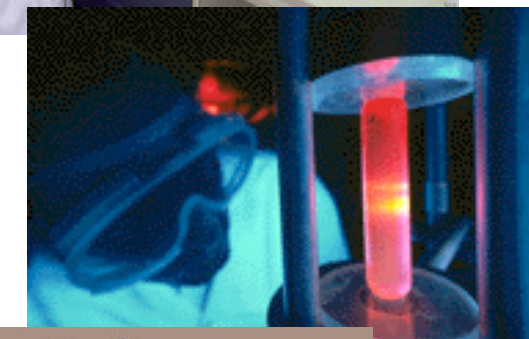
- Large-scale medical product testing capability
- High-containment labs and animal facilities
- Aerosol challenge for large studies
- FDA-regulated safety and efficacy



USAMRIID

Examples of Current Research Areas

- Botulinum neurotoxin heptavalent vaccine
- Alternative delivery methods for recombinant protein vaccines
- Recombinant ricin vaccine
- Next-generation diagnostics
- Therapy for smallpox and other orthopox viruses
- Next-generation EEE/WEE vaccines
- Filovirus vaccines





National Interagency Biodefense Campus at Fort Detrick

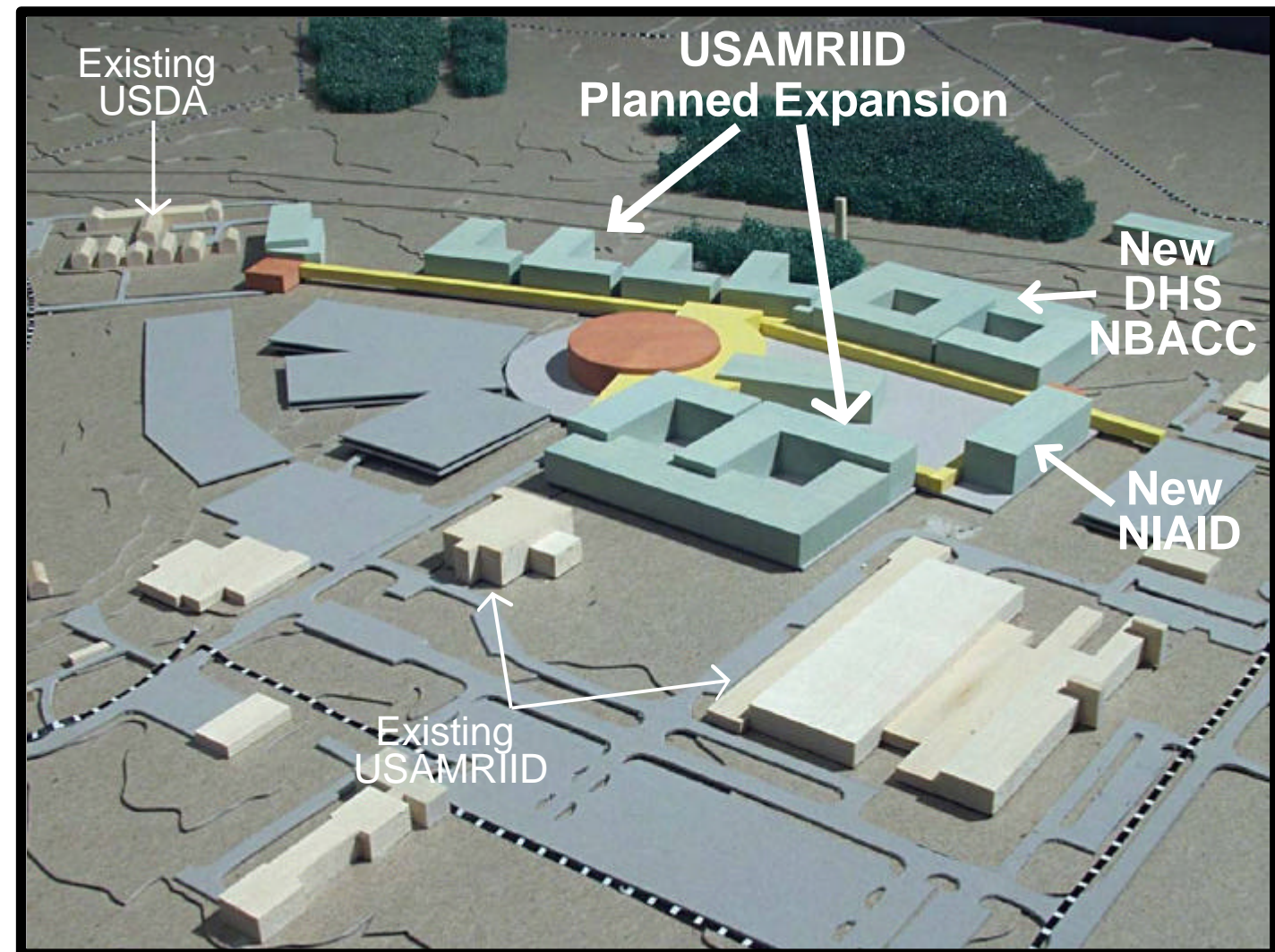


Joint and Interagency Partners

- DoD, USAMRIID
- DoD, Armed Forces Medical Intelligence Center
- National Cancer Institute
- Department of Agriculture

Planned New Construction

- NIH, NIAID
- Department of Homeland Security, National Biosecurity Analysis and Countermeasure Center (NBACC)
- Department of Defense, USAMRIID Replacement and Test & Evaluation Facility



**Scientific Expertise, Security
& Synergy**



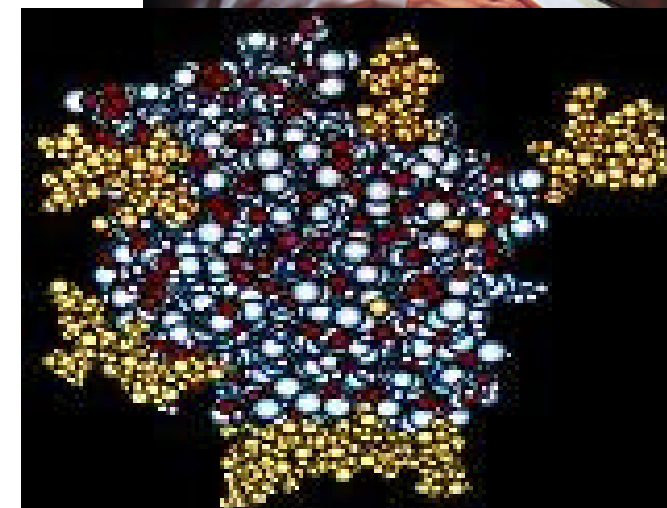
U.S. Army Medical Research Institute of Chemical Defense (USAMRICD)

Facilities:

- Chemical surety facility
- Neurophore electrocorticographic recording system
- Nerve/muscle physiology testing facilities
- Molecular modeling and genomic analysis systems

Expertise:

- Neurotoxicology
- Drug discovery and preclinical development
 - Nerve agent pretreatments and therapies
 - Vesicating agent therapies
 - Non-traditional chemical threats
 - Biological neurotoxins
- Skin protection and decontamination
- Biomedical sample analysis for CW agent exposure
- Medical management of chemical casualties

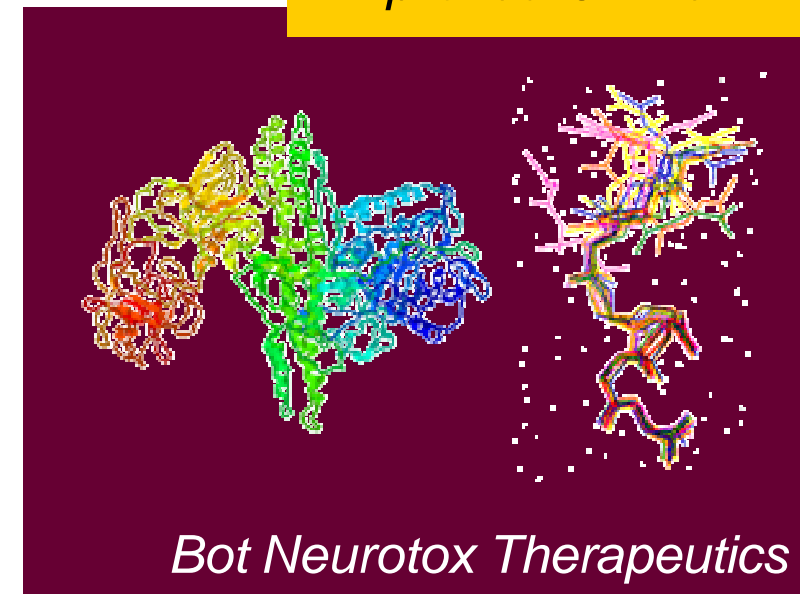
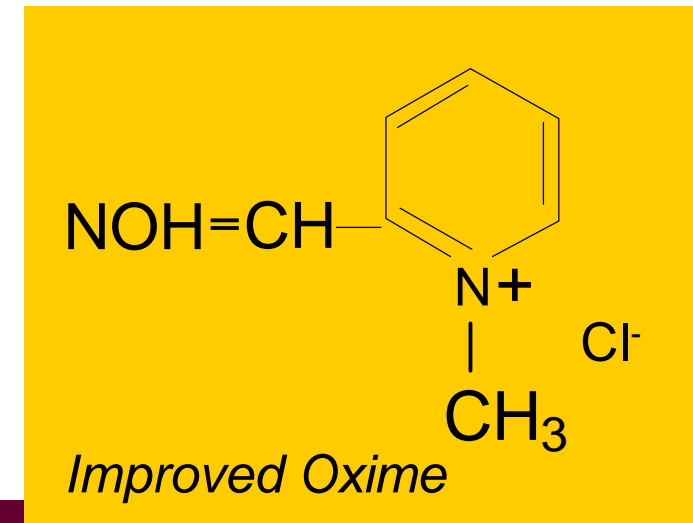




USAMRIID

Examples of Current Research Areas

- Improved oxime for nerve agent therapy
- Recombinant catalytic bioscavenger for nerve agent prophylaxis
- Antiinflammatory drugs for vesicant therapy
- Botulinum neurotoxin therapeutics
- CW agent diagnostics
- Low-level effects of CW agents





Walter Reed Army Institute of Research (WRAIR)

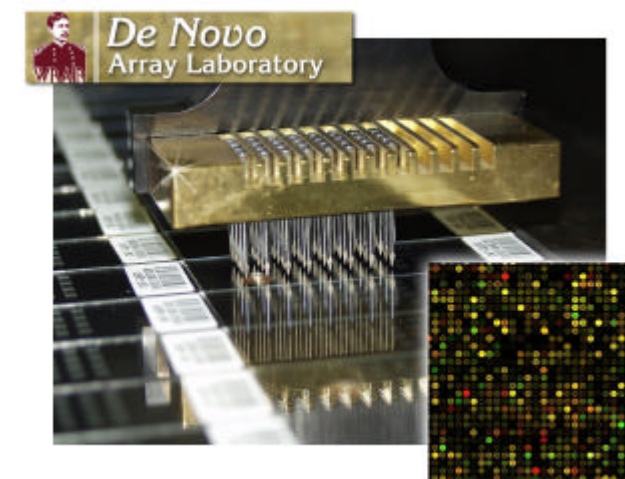
Facilities:

- Vaccine Pilot-Scale Production Facility
 - Current Good Manufacturing Practice/Good Laboratory Practice-compliant operations
 - Viral, bacterial, and recombinant vaccines
- De Novo Microarray Laboratory
 - Production of custom cDNA print microarrays for analysis of gene expression and translation



Expertise:

- Vaccine and drug discovery and development
- Molecular biology of bacterial, viral, and parasitic pathogens
- Neuroscience

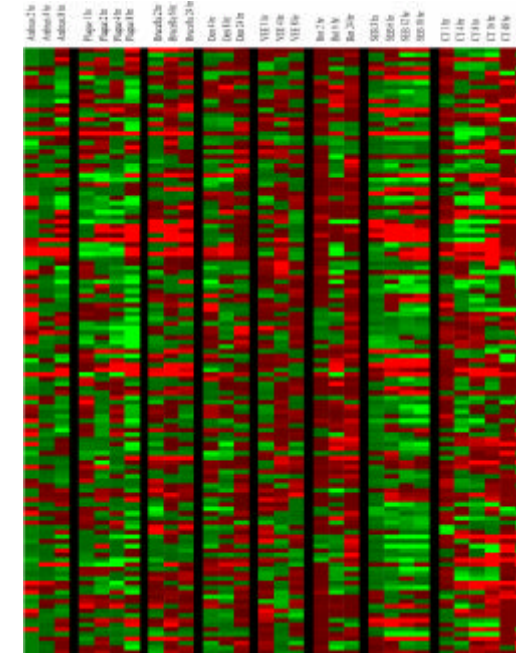




WRAIR

Examples of Current Research Areas

- Host gene expression responses to biothreat agents
- Botulinum neurotoxin therapeutics
- Nerve agent bioscavengers





Working with USAMRMC

Partnership Mechanisms:

- Cooperative Research and Development Agreements
- Material Transfer Agreements
- Patent License Agreements
- Clinical Trial Agreements
- Test and Evaluation Agreements
- Technical Assistance Agreements
- Partnership Intermediaries



Working with USAMRMC (cont.)



Strategic Partnership Office

- Part of the Office of the Deputy for Research and Development
- Facilitates USAMRMC interactions with industry, academia, and other DoD and Federal agencies
 - Clearinghouse for information on USAMRMC in-house experts, capabilities, and technologies
 - Assist in development of formal agreements
 - Provide transparent business processes for consumers of USAMRMC services

**Full-Service Support to
USAMRMC Partners**



USAMRMC Partners

- National Institute of Allergy and Infectious Diseases (NIAID)
 - Cooperate on biodefense research and development
 - Evaluate NIAID-developed products
- Department of Homeland Security
 - Management assistance to National Biosecurity Analysis and Countermeasures Center (NBACC)
- Defense Advanced Research Projects Agency
 - Transition technologies from Unconventional Pathogen Countermeasures and Tissue-Based Biosensors program
 - Cooperate with DARPA Defense Sciences Office as agent for execution of militarily relevant research
- Department of Agriculture
 - Support for analysis of agriculture threats and emerging animal and crop diseases
- Federal Bureau of Investigation
 - Support to Hazardous Materials Response Unit for analysis of suspected biological materials
- Pentagon Force Protection Agency (PFPA) Laboratory
 - Analysis of suspected biological threat materials



Point of Contact

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QUESTIONS?