Diagnostics and Detection (CBA)

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What We Do

Vision
• Comprehensive integrated early warning to reduce the effects of biological and chemical threats.

Mission
• Finding and fostering science and technology that informs rapid and efficient consequence management, to include endemic and emerging disease.

Values
• Product Driven
• Innovative and Creative
Template Specs

Detection
- Chemical and biological detection
- Remote sensing
- Threat signature characterization
- Platforms for detection of all CB threats
- Environmental sensors

Diagnostics
- Rapid, sensitive, and specific tests for the identification of exposure to CBWAs
- Point-of-need/care diagnostics with laboratory reference level sensitive and specificity
- Novel and innovative diagnostic assays and platforms
- Full diagnostic system capabilities from sample preparation to bioinformatics analysis
Medical Diagnostic Programs

Assay & Reagent Development
- Assays for use on existing, novel and/or emerging platforms
- Pre-EUA assays for emerging biological threat agents
- Highly sensitivity and specific assays

Diagnostic Device Platforms
- Point-of-need/care devices with sensitivity and specificity comparable to reference laboratory-based platforms
- Ease of use, including minimal training and friendly user interfaces
- Orthogonal capabilities

Host Response Biomarker Discovery
- Rapid analysis of Antimicrobial/Multi-drug Resistance (AMR/MDR) sensitivity
- Characterization of the spectrum of AMR/MDR mechanisms that exist in BWAs

Antimicrobial / Multi-Drug Resistance

Threat Agent & Emerging Disease Characterization
- Genotypic and phenotypic analysis of bio- and emerging threat agents to support the development of medical diagnostics

Biomedical Informatics
- Develop applications and software tools for analyzing and integrating BWA information and genetic data to support diagnostic assay development

Multi-Echelon Diagnostics (MEDx)
- Chemical diagnostics for CWAs, NTAs, and PBAs.
- Field forward diagnostic assays and platforms.

Chemical Diagnostics
- Early testing of novel diagnostic prototypes and platforms
- Evaluation of diagnostics in real world settings
Detection Programs

**Man-Worn Chemical Hazard Sensor**
- Development of individual-worn detectors
- Provide capability for unattended monitoring of perimeters to enable early indication of airborne threats
- Integrated early warning and upgrade of existing monitoring technologies

**Pop-Up Perimeter Defense**
- Imagery
- Passive sensing
- Sensors for unmanned platforms
- Aerosol monitoring for PBAs and novel threats

**Integrated Threat Awareness**
- Tools to enhance early warning and situational awareness
- Low cost point sensors
- Sensing/collection systems for unmanned platforms

**The Zero Project**
- Rapid prototyping and assessment to develop a sensor solution to perform with zero false alarms in a highly complex environment.

**Unconventional Detection Modalities**
- Organ on a chip sensors
- Naturally occurring biological phenomena

**Emerging/Novel Bio Threat Sensing**
- Sensing novel biological threats through detection applications using proteomic and other ‘omic based approaches

**Distributed Biological Reconnaissance**
- Developing a suite of expeditionary chemical sensors for multiple capabilities; including non-traditional agents and sensitive site exploitation

**ExAntT: Expeditionary Analytical Toolkit**
- Developing an expeditionary analytical toolkit to aid in the rapid analysis of chemical threats.