



# CENTER for ADVANCED Molecular Detection (CAMD)

Science & Technology, Office of the Chief Scientist, 59<sup>th</sup> MDW / STHC, JBSA-Lackland, TX  
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## ABOUT US

The Center for Advanced Molecular Detection (CAMD) is a unique research unit within the 59<sup>th</sup> Medical Wing (MDW) Science and Technology Office. CAMD provides integrative solutions for the advancement of molecular diagnostics, biomaterial development, tissue engineering, and precision medicine needs for internal Department of Defense organizations and supports collaborative opportunities with external academic and industry partners.

As part of the Joint Integrative Clinical Medicine (JICM) portfolio, research efforts at the CAMD is divided into two major focus areas, (1) Clinical Molecular Research and Support (CMRS) and (2) Advanced Engineering Research and Development (AERD). The goal of these areas is to support the Military Health System and external partners in their molecular, genetic, and proteomic requirements, while applying innovative engineering principles and approaches to improve existing diagnostic, therapeutic, and clinical capabilities. Furthermore, the CAMD serves as the coordination arm to support internal and extramural collaborators in translating cutting-edge concepts and technologies into material and knowledge products.

## CAPABILITIES

### **Personnel**

CAMD is staffed with a highly qualified team of scientists, research coordinators, certified laboratory technicians, and an Air Force Non-Commissioned Officer in Charge (NCOIC).

### **Protocol Monitoring**

CAMD scientists procure funding to support 59<sup>th</sup> MDW/ST, Air Force (AF), and Department of Defense (DoD) missions. Laboratory technicians generate data and assist writing research reports and manuscripts. Research coordinators support protocol development and management, assist with Institutional Review Board (IRB) and Institutional Animal Care and Use Committee (IACUC) submissions.

### **External Collaborations/Support**

Through collaborative agreements, the CAMD provides scientific and regulatory expertise to both internal and external investigators in the development of innovative research projects that align with the requirements of the 59<sup>th</sup> MDW/ST, AF, and the DoD. Additionally, the CAMD offers opportunities for graduate, post-graduate, and GME/SAUSHEC students to develop research-based competencies.

### **Administrative/Internal Support**

The CAMD has the support of the following internal accredited 59<sup>th</sup> MDW organizations:

- Institutional Review Board (IRB)
- Institutional Animal Care and Use Committee (IACUC)
- Office of Research and Technology Applications (ORTA)

## RESEARCH AREAS

### ***Disease Surveillance***

Utilization of advanced molecular and biotechnological systems to develop clinical strategies for identification, prevention, and mitigation for current and future epidemics.



### ***Applied Microbiology***

Develop, execute, and analyze infection control and prevention techniques utilizing real-world conditions that lead to best practice guidelines and drive requirement-specific technologies.



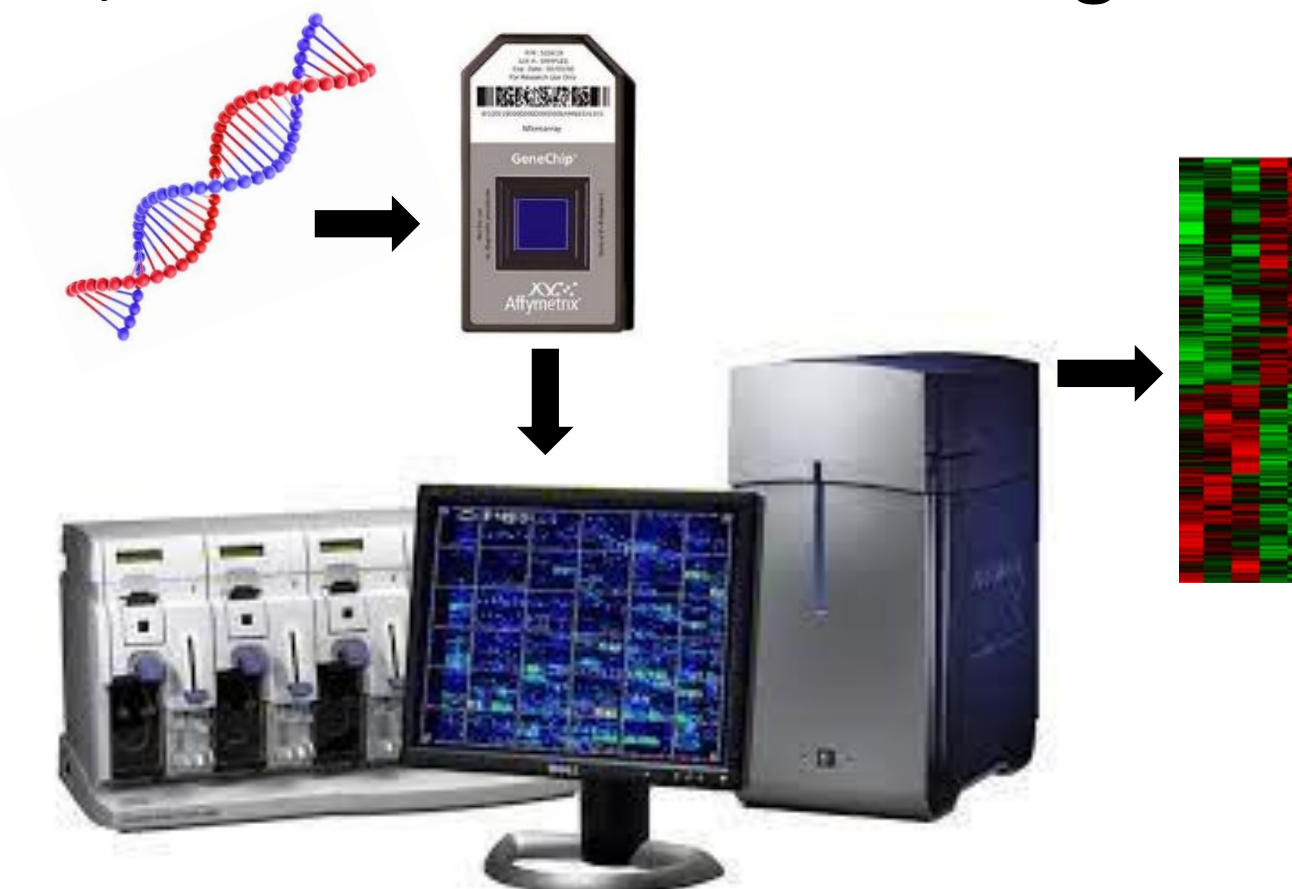
### ***Evaluation of Novel Molecular Point-of-Care Diagnostics***

Evaluation of innovative molecular-based diagnostics and other biotechnologies to assess their viability to improve military health outcomes.



### ***Molecular-based Approach to Disease and Injury***

Characterizations, identification, and quantification of physiological disease-specific biomarkers using existing or custom genetic, proteomic, and metabolomic strategies.



### ***Regenerative Medicine***

Primary and stem cell-based therapies, and alternative engineered materials for the restoration of traumatically injured hard or soft tissue leading to long-term cost savings.



### ***Precision Care Medicine***

Comprehensive scientific and technical support for the development and evaluation of biomarkers for personalized medicine diagnostics and therapies.



## JOINT-LEVEL OPERATIONAL SUPPORT

### **Repositories**

CAMD maintains two IRB-approved tissue repositories which include unprocessed upper respiratory tract samples as well as extracted DNA RNA.

### **DoD Efforts & Contributions**

The Center's portfolio includes, but is not limited to, numerous joint projects such as:

- Febrile Respiratory Illness Surveillance among US Air Force Basic Military Trainees
- Trainee Health Surveillance-Gas mask Surveillance Testing
- Genetic Markers for Musculoskeletal Disease and Injury Related Conditions
- Coronavirus Detection on the Biomeme System
- Evaluation of Next Generation Technologies for Epidemiological relevant Upper Respiratory Tract Infections and Pathogens identified in Clinic Patients
- Effects of Pregnancy-Specific Chronic Anxiety on Placental Inflammatory and Oxidative Stress Response and Birth Outcomes.
- Application of External Electrical Field for the Delay or Prevention of Wallerian Degeneration in Traumatic Nerve Transection.

## COLLABORATORS



### **DIRECTOR**

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<http://www.59mdw.af.mil/Units/Chief-Scientist-ST>

No federal endorsement of collaborators outside of the Department of Defense intended.