Center for Advanced Molecular Detection (CAMD)

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About Us

The Center for Advanced Molecular Detection (CAMD) is a research facility dedicated to improving patient care in the Department of Defense (DoD) enterprise through innovative scientific investigations research. Under the Diagnostics and Therapeutics Program, the CAMD specializes in 'omics'-informed/biomarker-based clinically focused medicine research, which supports the Military Health System (MHS) in areas including but not limited to: Personalized/Precision Medicine; Military and Family Health & Resilience; Regenerative / Restorative Medicine; Disease, Injury & Pain Management; The Tri-Service orthopedic outcome-based research program, and the disease/non-battle musculoskeletal injury surveillance program for active-duty service members.

In collaboration with the Air Force Medical Evaluation and Support Activity (AFMESA) at Ft. Detrick, MD, the CAMD tests and evaluates new systems, methods of analyses, and detection platforms to improve mission effectiveness, which includes reliability studies for field transitions and medical readiness.

Capabilities

Personnel:

The Center is staffed with a highly-qualified team which includes research coordinators, clinical and research scientists, certified laboratory technologists, a QA/QC manager, and an Air Force NCOIC.

Protocol Monitoring:

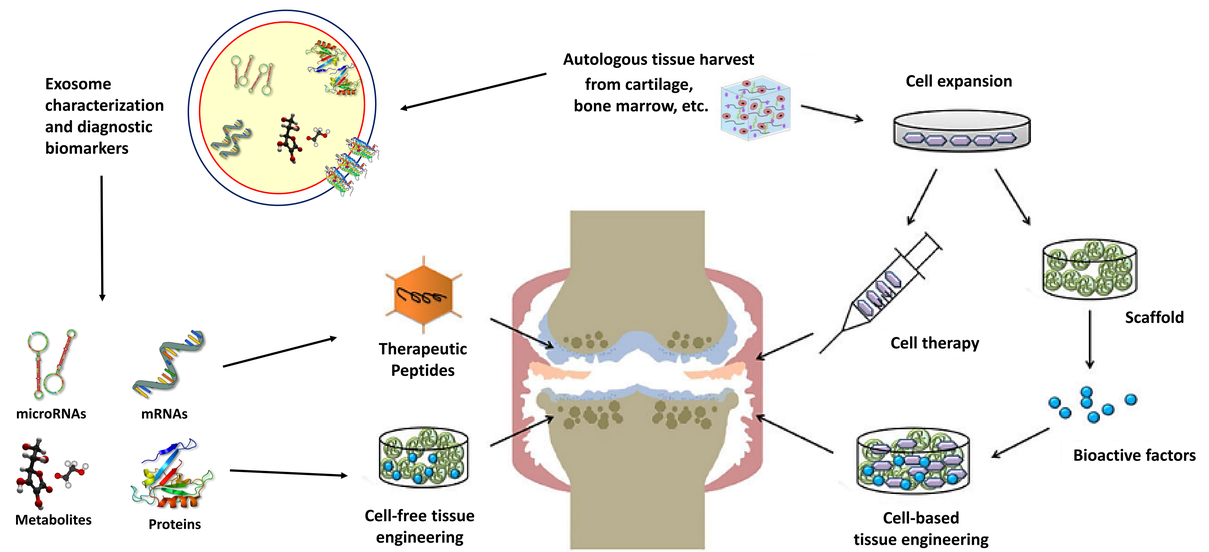
Clinical research coordinators support new protocol development, ongoing protocol management, assistance with Institutional Review Board (IRB) and Institutional Animal Care and Use Committee (IACUC) amendments and reports, as well as database support and maintenance.

External Collaborations/Support:

We provide expert scientific and regulatory consultations to investigators interested in collaborating with DoD projects which align with and meet current military needs and strategic goals. In support of our education and training mission, the CAMD mentors graduate, post-graduate, GME/SAUSHEC students from our fellow academic collaborators. The Center provides assistance/support in the design, drafting, submission, and execution of both, intramural and extramural biomedical and clinical research efforts with partners in Academia, DoD, Dept. of Veterans Affairs, and Industry.

Administrative/Internal Support:

The CAMD has access to the following accredited 59 Medical Wing (MDW) in-house organizations: the Institutional Review Board (IRB), Institutional Animal Care and Use Committee (IACUC), and the Office of Research and Technology Applications (ORTA) to assist in the development and conduct of human and animal studies as well as their respective technology transfers, for complete support of a medically ready force.



Precision & Regenerative Medicine Research

The physical training requirements of our warfighters increases injuries which can contribute to early onset of osteoarthritis (OA), a degenerative joint disorder. Due to its low vascularity, articular cartilage has a slow self-healing capacity and limited treatment options, which negatively impacts troop readiness. Upcoming research focuses on regenerative therapies (such as differentiated autologous mesenchymal stem cell implantation) as promising options to safely accelerate cartilage repair and ultimately restore both, healthy tissue and maximum joint function.

Partnerships

UT Health San Antonio

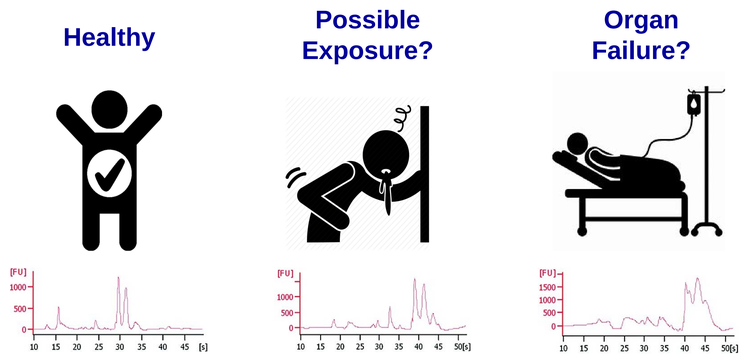
The University of Texas at San Antonio

State University of New York at Binghamton

University of the Incarnate Word

Naval Medical Research Unit San Antonio

MADE IN SPACE



Biomarkers of Diagnostic Significance

Minimally invasive samples are collected and tested for clinically relevant biomarkers which are extracted, analyzed, and characterized in order to generate specific molecular signatures. Collectively, data driven molecular outcomes can be correlated to predict molecular signatures that are indicative of patient status to providers.

Available Services

Biomedical Technology Test & Evaluations

Develop, plan, and execute accurate real-world test scenarios to support military needs.

Precision Care Medicine Research

Comprehensive technical recommendations/guidance on the science of 'omics'-informed medicine.

Regenerative Medicine Research

Cellular primary cultures and human tissue harvesting techniques for regenerative medicine.

Disease Outbreak Surveillance

Prevention, mitigation, forensic, and surveillance strategies using advanced biotechnology systems.

Nucleic Acid-Based Characterizations

Nucleic acid-based characterizations of targeted disease and/or physiological biomarkers.

Proteomic & Immuno-based Characterizations

Proteomic-based characterizations of targeted disease and/or physiological biomarkers.

Applied Microbiology

Develop, plan, and execute accurate/complete infection control and prevention for real-world test scenarios.

Cell Biology Techniques

Mammalian cell-based characterizations of targeted disease and/or physiological biomarkers.

Animal Models

Options for studies in regenerative medicine and traumatic wound/burn models.

Microscopy Techniques

Light and immunofluorescence microscopy.

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