

**Announcement**  
**Center for Commercialization of Advanced Technology**  
**Office of Technology Transfer and Commercialization**  
**California State University, San Bernardino**

***August 2009 Solicitation***

**Military Medical Technologies**

**Introduction**

The Center for Commercialization of Advanced Technology at California State University, San Bernardino (CCAT San Bernardino) is pleased to announce the opening of its latest solicitation. CCAT is focusing this national solicitation in support of advanced technologies to support military medical technology needs to meet urgent Department of Defense requirements. The solicitation will be open from 8:00 AM (PDT) Monday, August 24, 2009 through 4:00 PM (PDT) Friday, October 23, 2009, with applications being accepted after 8:00 AM (PDT) Thursday, October 1, 2009. It is anticipated that awards will be granted on or about January 18, 2010.

Technologies/products sought should be mature (at a minimum Technology Readiness Level 6) and have demonstrated effectiveness. The business and technical assistance CCAT provides is designed to assist industrial, academic, and governmental organizations with transitioning these technologies/products into the hands of military customers, and where appropriate, into the civilian community. Business assistance is designed to fully ascertain the commercial potential of technologies/products and strategically position an organization to successfully transition its technology/product to market. Technology assistance is intended to create form factors for technologies/products appropriate to military applications and ready them for smooth transition.

**Awards and Services**

Selected applicants may receive awards up to \$75,000 for product development, test, evaluation, and integration (PDT&E). Besides PDT&E awards, successful applicants will also be eligible for in-depth market studies, business and commercialization planning services, mentoring, access to venture and angel investment capital and other business development services. The objective of these services is to assist the applicant in transitioning its technology to the market and into the hands of military medical personnel as quickly and efficiently as possible.

**Objective**

This solicitation is intended to identify and select innovative technologies/products that advance military medicine in areas such as force health protection, operational medicine, combat casualty care, and health care systems. Proposals from industrial, academic, and government sectors will be selected to receive business and technical support from CCAT to facilitate the transition of these technologies/products to the marketplace.

## Topics

Technologies of interest include, but are not necessarily limited to, medical devices, pharmaceuticals, and biologic products.

- Operational Medicine -- provides “skin-in” solutions that protect service members and enhance their performance in operational and training environments that include multiple internal and external stressors, and their interactions. The most common stressors include:
  - Environmental stressors
    - Temperature and humidity extremes
    - Hyperoxia
    - Hyperbaric oxygen
    - Rapid underwater decompression
  - Metabolic stressors
    - Detraining
    - Overtraining
    - Dehydration
    - Fatigue
  - Materiel hazard stressors
    - RF radiation
    - Laser
    - Blast
    - Jolt/impact
    - Head-supported mass
    - Load carriage
  - Neuropsychiatric stressors
    - Traumatic events
    - Isolation
    - Information overload
    - New & conflicting roles
    - Family separation

Exposures can be acute or chronic, resulting in acute or chronic disease or injury. Technologies are sought that safely, effectively, and efficiently prevent or mitigate the exposures themselves or the health consequences of those exposures.

- Combat Casualty Care – Traumatic injury from blast (overpressure, shrapnel, fire, etc.), arms fire, and other acute physically hazardous exposures is the most significant cause of morbidity and mortality in the combat environment. Innovative technologies are sought that effectively and efficiently mitigate medical and surgical problems of the acutely injured service member. These medical/surgical problems include:
  - Resuscitation, including maintenance of tissue oxygenation and cardiopulmonary function
  - Hemorrhage control
  - Acute pain control
  - Rapid wound healing

- Prevention and treatment of wound infection
- Assessment of traumatic brain injury
- Casualty management across the spectrum of care environments

The most critical time period that predicts survival of critically injured service members is the first hour following injury. Effective technologies designed to be deployed close to the injured service member in space and time are particularly valued.

- Crosscutting Technologies – The multiple hazards of the combat environment are ubiquitous, unpredictable, and frequently inescapable. Consequently, prevention and mitigation of the physical consequences of the combat environment present singular challenges to usual medical, surgical, preventive medicine, and public health practices. These challenges are most frequently addressed through the application of advanced technologies. Many of these technologies are crosscutting in that they apply to multiple health problems and situations. Technology areas of interest that support military medicine include:
  - Sensors
    - Physiological
    - Environmental
  - Secure, networked wireless health and environmental monitoring systems
  - Physiologically-based and data-driven predictive algorithms for acute and chronic casualty management
  - Information technology for health data management spanning training, deployment, and re-deployment
  - Tissue engineering for wound healing
  - Wound infection prevention and treatment
  - Surgical and casualty management simulators

Technologies/products must be appropriately designed to operate in extreme environments ranging from the battlefield to undersea. Environmental and physiological sensor systems must be easily and unobtrusively mounted on service members in combat situations and capable of being wirelessly integrated into existing data networks. Such systems must be capable of significantly increasing combat medical awareness. Products for care delivery by medics at the site of injury must be rapidly and easily applied without compromising the benefits of rapid evacuation to rear care stations.

Technologies/products proposed for consideration should be at a level of maturity of at least TRL6 as described in the Proposal Template.

Clinical technologies/products ideally should have human testing data demonstrating their potential effectiveness and, where appropriate, be on a well-planned course aimed at eventual FDA approval. **Submissions proposing human and/or animal testing will not be considered for funding.**

## **References**

Additional information on the specific areas of interest in this solicitation can be found at:

[www.onr.navy.mil/sci\\_tech/34/342/cas\\_care.asp](http://www.onr.navy.mil/sci_tech/34/342/cas_care.asp)

[www.nmrc.navy.mil/nmrc\\_ccc\\_main.htm](http://www.nmrc.navy.mil/nmrc_ccc_main.htm)

<https://mrmc.amedd.army.mil/mrdrads.asp>

**Period of Performance**

Awards will be made by February 1, 2010. Project work must be completed no later than June 15, 2010, with submission of a final report and invoice no later than July 15, 2010.