



# LSRB

Life Sciences Research Board

## Mandate

- ◆ Interaction with academia
- ◆ Involvement of renowned experts in project evaluation, monitoring & review
- ◆ Participation of user labs & DRDO Life Sciences laboratories
- ◆ Sponsoring Seminar / Conference/ Workshop etc.

## Specialist Panels

- ◆ Life Support & Biomedical Devices (LSBD) Panel
- ◆ Physiology of Extreme Environment & Behavioral Sciences (PEE&BS) Panel
- ◆ Biotechnology and Bioremediation (BTB) Panel
- ◆ Food, Agriculture & Bioprospecting (FAB) Panel
- ◆ Soldier Health & Drug Development (SH&DD) Panel

## LSRB's Thrust Areas

- ◆ Versatile fabrics as technical textiles for protective clothing.
- ◆ Brain computer interface sensor & instrumentation for the relevance of military application.
- ◆ Neuro exoskeleton technologies for soldier locomotion enhancement and increase load carrying capacity.
- ◆ Combat medical support technologies / devices development.
- ◆ Mechanism and strategies for rapid acclimatization to extreme environmental conditions, including high & extreme altitude, desert, microgravity, hyperbaria amongst others.
- ◆ Next generation genetic screening tools, diagnostics including biosensors, for maladies at high/extreme altitude and other extreme environmental conditions.
- ◆ To Develop the Psychological tests and study the develop psychological tests/tools to Assess as well as training modules for the enhancement of Psychological wellbeing, resilience, mental health and values of the armed forces personnel.
- ◆ Surveillance of diseases caused by bio threat agents
- ◆ Vaccine and post exposure therapies for bio threat or chemical warfare agents

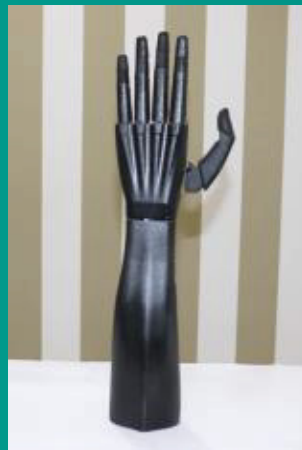
- ◆ Host-pathogen interaction of bio threat agents in natural host
- ◆ Herbal and chemical repellents for insect vectors and pests
- ◆ Light weight operational rations.
- ◆ High altitude agriculture
- ◆ Bio-mediated alternate fuel technologies.
- ◆ Vector-vector borne diseases
- ◆ Bioremediation
- ◆ Products & technologies for soldier support during jungle operations
- ◆ Herbal based pharmaceutical products and technologies.
- ◆ Pre hospital care of combat casualty.
- ◆ Traumatic brain injury
- ◆ Radiation countermeasures.

## Products

LSRB funded Projects executed by Academia/ Universities

### Bionic Arm Prototype

A Multi DOF Bionic Arm with Control-Assist Mode Functionality for use as a Prosthetic hand and control system that can be controlled by amputee with touchand voice interface.



### WISER-tES Device

A Cost effective, indigenous, portable, hand-held, single- channel, programmable, user- friendly, & compact neuromodulatory device (i.e.WISER-tES device) can bestudied for modulating certain brain regions to enhance human capability by enhancing vigilance, working memory, motor skills and several cognitive functions.



## Light weight and Anticorrosive Material for Shoe Outsoles

Anticorrosive property of the developed material for shoe outsoles is found to be suitable for coastal army and navy personnel



## Biopotential signal analysis system for control of mobility assistive device

A biopotential signal analysis system with advanced signal processing and classification algorithm was developed to acquire and classify the biopotential signals (EEG, EOG and EMG) into multiple classes for the control of mobility assistive device.



## Patents

Granted/ filed under LSRB funded Projects executed by Academia/ Universities

- ◆ A process for producing graphite incorporated poly urethane based light weight and anticorrosive nanocomposite for shoe outsole application.
- ◆ Novel Excreta Electro Remedial System: Construction and operation.  
New composition of bioactive glass based Hemostatic matrices and preparation thereof
- ◆ A synthetic peptide possessing antimicrobial and anticancer properties.
- ◆ A wound healing dermal membrane for humans and animals and a method of preparation thereof
- ◆ A process for metal hexacyanoferrate nanoparticles based removal of cesium ion and fluorescence sensing of the same
- ◆ Novel self-sustaining waste management
- ◆ Engineered heme stable in recombinant human hemoglobin to design hemoglobin based artificial oxygen carrier



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