Opportunity Title: Orthopaedic Trauma Research Fellowship
Opportunity Reference Code: EACE-2020-0009

Organization U.S. Department of Defense (DOD)

Reference Code EACE-2020-0009

How to Apply Components of the online application are as follows:

- Profile Information
- Educational and Employment History
- Essay Questions (goals, experiences, and skills relevant to the opportunity)
- Resume (PDF)
- Transcripts/Academic Records - For this opportunity, an unofficial transcript or copy of the student academic records printed by the applicant or by academic advisors from internal institution systems may be submitted. Click here for detailed information about acceptable transcripts.
- Recommendation(s) Required

Submitted documents must have all social security numbers, student identification numbers, and/or dates of birth removed (blanked out, blackened out, made illegible, etc.) prior to uploading into the application system.

If you have questions, send an email to STEM-WORKFORCE@orise.orau.gov . Please list the reference code of this opportunity in the subject line of the email.

All documents must be in English or include an official English translation.

Description The Extremity Trauma & Amputation Center of Excellence (EACE) is a unique organization within the DoD consisting of teams of researchers embedded at the point of care within multiple Military Treatment Facilities across the nation. In line with the congressionally directed mission of the EACE, the research efforts undertaken focus on the mitigation, treatment and rehabilitation of traumatic extremity injuries and amputations with a specific focus on translating their findings into clinical practice to improve the care of injured Service Members and Veterans.

The EACE Regenerative Biosciences Laboratory primarily focuses on the development and evaluation of next generation technologies and approaches for the treatment of combat related orthopaedic trauma. In particular, contemporary cell / molecular biology in vitro approaches as well as clinically relevant small and large animal models of orthopaedic trauma are utilized to generate the knowledge required to translate promising technologies into clinical practice.

Specifically, ongoing efforts within the EACE Regenerative Biosciences Laboratory include several projects focused on volumetric muscle loss (VML) and post traumatic osteoarthritis (PTOA).

VML, defined as the irrecoverable frank loss of skeletal muscle tissue with associated persistent functional deficits, presents pervasively, with representation in ~50% of total war injuries, and is a leading factor in the decision to amputate with 80% of the surgical amputations performed on military casualties directly related to this missing skeletal muscle tissue. Historically, chronic functional deficits after severe muscle trauma were considered a part of the natural sequelae of injury. Thus, VML often went without a definitive surgical treatment due to a lack of effective therapeutic options, which facilitates a fibrotic repair paradigm leading to persistent muscle weakness and long-term disability. For example, a recent retrospective analysis of a cohort of medically discharged SMs showed that VML had the greatest deleterious impact, as determined by frequency and degree of disability

In the event of a traumatic orthopaedic injury affecting a synovial joint, damage to the articular

surface often occurs either through direct insult or indirectly as a result of subsequent incongruities and altered loading. These sites subsequently result in a high reoccurrence of injury and progressive degeneration through a process coined Post Traumatic Osteoarthritis (PTOA). PTOA is pervasive and represents a significant socioeconomic burden as it is estimated to result in expenditures on the order of 15 billion dollars per year within the United States civilian sector, and represents the most prominent deleterious secondary health condition leading to medical discharge following combat related trauma in our military. As such, new interventional strategies which minimize or prevent progressive degeneration of the joint are of great interest to facilitate greater joint function and quality of life for the patient.

Key education and training aspects of this Orthopeadic Trauma Research Fellowship position will be to:
-- Gain exposure to various aspects of pre-clinical research by participating in ongoing collaborative research projects
-- Collect data appropriate to existing research protocol(s)
-- Process, analyze, and interpret collected data
-- Perform descriptive and inferential statistical analyses
-- Participate in the preparation abstracts for professional conferences and/or manuscripts for publication in peer-reviewed scientific journals

Appointment Length

This appointment period will end September 30, 2021, with the possibility to be renewed for additional research periods. Appointments may be extended depending on funding availability, project assignment, program rules, and availability of the participant.

Participant Benefits

Participants will receive a stipend to be determined by **EACE**. Stipends are typically based on the participant's academic standing, discipline, experience, and research facility location. Other benefits may include the following:

- Health Insurance Supplement. *Participants are eligible to purchase health insurance through ORISE.*
- Relocation Allowance
- Training and Travel Allowance

Nature of Appointment

The participant will not enter into an employee/employer relationship with ORISE, ORAU, DOD, or any other office or agency. Instead, the participant will be affiliated with ORISE for the administration of the appointment through the ORISE appointment letter and Terms of Appointment.

Qualifications

Required Knowledge, Skills, and Abilities: Experience in the fields of regenerative medicine, tissue engineering, cell / molecular biology, immunology, biomaterials, physiology, or related fields is required. Proficiency with contemporary biomedical wet lab methodology and small and/or large animal models are also required. Specific research background in the area of extremity trauma is highly desired. A track record of publication and excellent technical writing skills are preferred.

Minimum Education/Training Requirements: PhD from an accredited institution in bioengineering,

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biomedical engineering, immunology, cell / molecular biology, physiology, or a related field

Minimum Experience: 3-5 years of experience performing pre-clinical research

Physical Capabilities: Long periods of standing and sitting; research animal handling

Work Environment: The work environment is that of a biomedical wet laboratory in a DoD teaching and research university / hospital

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Doctoral Degree received within the last 60 months or currently pursuing.
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (12 👁)
  - **Communications and Graphics Design** (2 👁)
  - **Computer, Information, and Data Sciences** (16 👁)
  - **Earth and Geosciences** (21 👁)
  - **Engineering** (27 👁)
  - **Environmental and Marine Sciences** (14 👁)
  - **Life Health and Medical Sciences** (45 👁)
  - **Mathematics and Statistics** (10 👁)
  - **Other Non-Science & Engineering** (2 👁)
  - **Physics** (16 👁)
  - **Science & Engineering-related** (1 👁)
  - **Social and Behavioral Sciences** (27 👁)