

**Opportunity Title:** Researcher - Bioprocessing and Bioengineering Laboratory

Support

**Opportunity Reference Code:** CCDC-SC-2020-0007

**Organization** U.S. Department of Defense (DOD)

**Reference Code** CCDC-SC-2020-0007

**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.
- 1 Recommendation

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 [Army-RDECOM@orise.orau.gov](mailto:Army-RDECOM@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 U.S. Army Combat Capabilities Development Command Soldier Center (CCDC-SC) is located at the U.S. Army Natick Soldier Research Center in Natick, Massachusetts, under the Army Futures Command. Stretching back to 1954, the CCDC Soldier Center's history of support for the Soldier has continued uninterrupted for more than six decades, with a focus on Soldier-related research, development, and testing and evaluation efforts. Made up of a diverse workforce comprised of scientists, engineers, technologists, and equipment designers, the CCDC Soldier Center provides a wide range of capabilities to the Soldier, to include field feeding and life support systems, clothing, precision airdrop systems, and ballistic, chemical and laser-protection systems. CCDC-SC also supports Soldier-related research, development, testing, and evaluation efforts. CCDC-SC's highly skilled team of scientists performs various research that includes soldiers' uniforms, meals ready to eat (MREs), tents, sleeping bags, parachutes, and airdrop capabilities. If the Soldiers wear it, eat it, sleep under it, or have it airdropped to them, the product research and development can be traced back to the mission of CCDC-SC.

As an ORISE participant at CCDC-SC, you will have an opportunity to learn and take part in projects in the bioprocessing and bioengineering laboratory. With guidance from CCDC-SC scientists, the participant will be planning and performing automated in vitro fermentation studies using complex microbial communities derived from human fecal samples and rationally-designed simplified communities to contribute to understanding the link between diet, military-relevant stressors, and gut microbiota composition and function. The research will include wet laboratory techniques such as elaborate media preparation, benchtop immunoassays for metabolites and proteins, DNA/RNA and solvent extractions, gel electrophoresis, polymerase chain reaction, anaerobic/sterile propagation of bacteria within an anaerobic chamber, processing of human fecal samples and general use of established laboratory protocols. The research will also encompass data compilation and analysis using




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biostatistics, preparation, and communication of scientific reports and researching in a group environment. Under the guidance of a mentor, the participant will support microbiome research activities within the performance enhancement work package under the CCDC-Soldier Center's flagship program MASTR-E (Measuring and Advancing Soldier Tactical Readiness and Effectiveness). The project also supports joint research under the Defense Health program with our Army Research Institute for Environmental Medicine partner. The participant will learn the importance of down selecting candidate intervention strategies vital to meeting program and mission goals to optimize/enhance Warfighter health and performance.

For more information about the CCDC-Soldier Center, please

see: <https://ccdcsoldiercenter.army.mil/#/whoweare>

#### **Appointment Length**

Should the candidate be successful in this 1st 6 month period of performance, a longer term fellowship will be authorized. Appointments may be extended depending on funding availability, project assignment, program rules, and availability of the participant. Desired appointment start date 10/01/2020.

#### **Participant Benefits**

Participants will receive a stipend to be determined by CCDC Soldier Center. 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**

Masters level participant with limited experience or recently graduated PhD student seeking post doctoral experience with technical background in bioprocessing, biotechnology, microbial ecology, process control/chemical engineering or other suitable competency for employing in vitro fermentation to explore microbial ecology of the human gut. A candidate with hands-on, working knowledge on using automated in vitro fermentation bioreactors, practical knowledge on microbiology, specifically propagating bacteria using anaerobic and sterile techniques, molecular biology including DNA/RNA analysis and polymerase chain reactions, biochemical techniques including immunoassays, organic chemistry for solvent-based extractions and biostatistics for data analysis is desired. The participant should have adequate organizational skills for independent experimental planning, verbal skills for effectively communicating results and a willingness for mentoring from experienced project manager.

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**Eligibility  
Requirements**

- **Citizenship:** U.S. Citizen Only
- **Degree:** Master's Degree or Doctoral Degree received within the last 60 months or currently pursuing.
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (12 👁)
  - **Engineering** (27 👁)
  - **Environmental and Marine Sciences** (1 👁)
  - **Life Health and Medical Sciences** (45 👁)
- **Age:** Must be 18 years of age
- **Veteran Status:** Veterans Preference, degree received within the last 120 month(s).