Anaerobic Bacteria PhD Research
Natick, MA
ORAU

Number of Openings 1
Degree Required PhD - Graduate
Degree Specialization PhD Bioengineering, Bioinformatics, Food Sciences, Microbial Ecology, and or Microbiology

Company Summary
The Research Participation Program for the U.S. Army Natick Soldier Research Development & Engineering Center (NSRDEC) provides opportunities to participate in NSRDEC’s on-going and applied research and development projects through its programs to maximize the Warrior’s survivability, sustainability, mobility, combat effectiveness and quality of life by treating the Soldier as a System. NSRDEC is focused on delivering world class research, development, systems engineering and services with a unique human-centric focus by: cultivating a highly motivated, expert and agile workforce; exceeding customer and stakeholder expectations; delivering an unprecedented pace and honoring commitments; and fostering long term strategic partnerships and collaborations with key customers, other government agencies, industry, and academia. Project areas disciplines include Engineering, Biology, Physics, Chemistry, and Material Science.

BENEFITS OF PARTICIPATING IN THE ORISE PROGRAM
Selected Fellows/Researchers will have the opportunity to perform research on topics of interest to the U.S. Government and to interact with leading scientists performing research and/or advising at the sponsor. The extensive partnering relationships with universities and other government agencies will expose participants to a broad research community. Program participants will have the opportunity to meet government decision-makers and learn directly from them about the role of scientific research in addressing complex, real-world (i.e., operational) needs. Furthermore, fellows have the opportunity to learn how research products transition from the proof-of-concept stage to integrated production systems. Other benefits may include the following:
• Stipend Payments
• Health Insurance
• Inbound Relocation/Dislocation
• Training & Travel

ELIGIBILITY REQUIREMENTS
Applicants should have recently completed a degree within five years of the desired starting date in or related discipline, or will be able to complete of all requirements for the degree within six months of the starting date. Other applicants will be considered on a case-by-case basis. The program is open to all qualified U.S. citizens without regard to race, sex, religion, color, age, physical or mental disability, national origin, or status as a Vietnam era or disabled veteran.

APPLICATION
Applications are accepted and reviewed on an ongoing basis. Selections are made as openings occur throughout the year. A complete application includes: profile, two references, and transcripts for all degrees earned and/or currently attending.

GENERAL INFORMATION
The participants will be selected based on academic records, recommendations, applied research interests and compatibility of background with applied research programs and projects at the host Installation. The initial appointment is typically for one year and may be renewed for up to four additional years based upon recommendation of the host installation and subject to availability of funds. The participant will receive a monthly stipend which is determined based upon level of education, training, and experience. Inbound travel and moving expenses are reimbursed according to established policies. Travel and other costs will also be reimbursed for training related to the project and approved by ORAU and the host installation. The participant must show proof of health and medical insurance. Health plans are available through the ORAU for Postgraduate Internship participants.

One research opportunity is available with the US Army Natick Soldier Research, Development and Engineering Center (NSRDEC), located in Natick, MA. NSRDEC is seeking a PhD candidate with desired Experience/knowledge related to: (1) strain engineering/synthetic biology of anaerobic bacteria; (2) bioinformatics analyses/assessments of 16s RNA pyrosequencing data and/or other ‘omics derived data; (3) food science, microbial ecology, and/or microbiology. This opportunity is desired to started on or before 1 OCT 16. The annual stipend range for this appointment is between $60-65,000.
This is a request for a full-time post-graduate or post-doctorate research scientist in support of an ongoing program entitled “Nutritional strategies for enhancing gut microbiome resiliency to military-relevant stressors”. The project aims to characterize the effects of military-relevant stressors on the gut microbiome, to determine the relevance of these effects to human health/performance, and to identify targeted nutritional strategies to mitigate the effects of military-relevant stressors on the microbiome and enhance the resiliency of the microbiome to these stressors. The participant will supplement the collaborative project team via performance of bioinformatics analyses of population dynamics and genetic engineering/synthetic biology for tailored strategies to build resiliency to stressors. The participant will analyze pyrosequencing and/or ‘omics data to assess acute stress-induced population changes, at both the bacterial genus/species and functional genomic level. Furthermore, the participant would enable a genetic engineering/synthetic biology approach to designing specific beneficial bacteria for a targeted treatment that could be incorporated into food products. The synthetic biology approach toward building nutritional strategies to enhance performance could greatly benefit the potential outcome of the work. Lastly, the participant will perform colonic fermentations using a recently established, automated “simulated gut” to understand the biotransformation of food components by the complex bacterial community within the gut microbiome. The knowledge, when coupled with understanding effects on the host, will enable identification of key food products or food-derived metabolites that have potential to enhance human health and performance.

EXPERIENCE/KNOWLEDGE RELATED TO: (1) strain engineering/synthetic biology of anaerobic bacteria; (2) bioinformatics analyses/assessments of 16s RNA pyrosequencing data and/or other ‘omics derived data; (3) food science, microbial ecology, and/or microbiology

CANDIDATE SKILL SET REQUIRED: (1) post-graduate/post-doctoral experience with strain engineering of anaerobic bacteria for tailored functionality, (2) experience/knowledge related to bioinformatics analyses/assessments of 16s RNA pyrosequencing data and/or other ‘omics derived data, 3) experience with DNA amplification using PCR/real-time PCR, (4) experience/knowledge propagating complex microbial communities under anaerobic conditions using in vitro fermentation techniques, (5) experience using automated process control/bioprocessing equipment and (6) general background in synthetic biology, computational sciences/biostatistics, life sciences, food sciences, microbiology and/or microbial ecology.

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