

Opportunity Title: Adaptation Physiology
Opportunity Reference Code: AFRL-1144278543

Organization U.S. Department of Defense (DOD)

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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 - [Click here for detailed information about acceptable transcripts](#)
- References

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 Airforce@orise.ora.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 Air Force Research Laboratory (AFRL) is the Air Force's only organization wholly dedicated to leading the discovery, development, and integration of warfighting technologies for our air, space and cyberspace forces. They trace their roots to the vision of airpower pioneers who understood science as key to air supremacy. The passionate commitment of AFRL people to realize this vision has helped create the world's best air, space and cyberspace force. For more information about the AFRL, please visit <https://www.wpafb.af.mil/afrl/>.

This opportunity supports the AFRL research efforts in advancing our understanding of the biological mechanisms of human performance. The overarching scientific question that drives our research is the following: "How do individuals adapt and what are the biological mechanisms that facilitate adaptation?" This research explores how environmental conditions (stress, exercise, diet, electroceuticals) interact with biological mechanisms to modulate physiological functions. We utilize a variety of techniques (e.g. immunohistochemistry, neurobehavioral assays, brain stimulation, behavioral genetics models, sequencing, bioinformatics) to advance our understanding in this area. The integration of these methods allows us to tackle challenging problems that require multiple skill sets, various disciplines and creative approaches.

The primary projects include:

1. the biological signatures of performance
2. the biological mechanisms of brain modulation

The first of these projects is focused on the identification of novel biological signatures that are predictive of stress resilience/susceptibility and adaptability. The second project is focused on the identification of the neurobiological pathways by which non-invasive electroceuticals (e.g. transcranial direct current stimulation; tDCS) affect the brain and impact behavior. One of the exciting parts about this research is that brain stimulation is able to induce adaptation factors that result




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in enhanced synaptic plasticity, giving us an experimental model to test local adaptation mechanisms within the brain that are critical for human performance.

Both projects involve rodent models and can involve translational research in human subjects. This opportunity will support current efforts and will also be involved with the design of new experiments to advance the research mission of the Air Force Research Laboratory.

Appointment Length

This ORISE opportunity is scheduled to be a twelve month appointment. Renewals are offered up to one year at a time, for a total of up to five years of research participation. 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 AFRL. 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.

While participants will not enter into an employment relationship with DOD or any other agency, this opportunity will require a suitability investigation/background investigation. Any offer made is considered tentative pending favorable outcome of the investigation.

Qualifications

Applicants are expected to have a strong background in physiology and research experience in endocrinology, neuroscience and/or molecular biology is preferred. Qualified candidates must have completed their degree within the past five years.

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Any degree received within the last 60 months or currently pursuing.
- **Discipline(s):**
 - **Environmental and Marine Sciences** (1 )
 - **Life Health and Medical Sciences** (45 )