

**Opportunity Title:** Biomedical Engineering Doctoral Fellowship with the Defense Health Agency  
**Opportunity Reference Code:** DHA-JBSA-2023-0001

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

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**How to Apply** Click on *Apply* at the bottom of the opportunity to start your application.

**Description** Join the US Air Force and Defense Health Agency in cutting edge research as an ORISE doctoral student fellow and advance the field of iterative artificial intelligence in healthcare!

### What will I be doing?

*Artificial Intelligence Derived Small Molecules for Rapid Hemorrhage Control and Patient Stabilization*

Innovative efforts in small molecule design through artificial intelligence and machine learning platforms have recently revealed new avenues for customized drug design based off the molecule framework of preexisting molecules. The proposed research will examine if AI guided autonomous molecular optimization can be used to exploit unique properties of known hemostatic molecules to create a series of novel, biocompatible hemostatic compounds. For the current effort, small molecules created by AI techniques will first undergo a series of high throughput in vitro cytotoxicity screening. The most biocompatible candidates will then be subjected to in vitro functionality assays to determine their efficacy to perform as hemostatic agents. Cell based viability analyses will be adjusted to accommodate 384 well plates to allow for serial dilutions and high throughput screening. Molecules of interest will be further screened by flow cytometry for apoptotic markers. Ex vivo coagulation assays will be used to determine hemostatic properties.

### Why should I apply?

This project will be conducted at Joint Base San Antonio-Lackland in a well-appointed cell biology and microbiology laboratory. You will have access to core equipment including flow cytometers, high throughput sequencing and genomics equipment, spectrophotometers, and other autonomous machines such as the EpMotion for automated reagent addition. The project is wet lab based and has the potential to expand beyond microbiological and cell biology assays into more complex biological and environmental models.

As an ORISE participant, you will actively engage in experiments under the guidance of mentors and other technical staff to further your professional development. In addition, you will gain useful knowledge on how government research is conducted, learn about grant opportunities, and be exposed to other military relevant research projects. Many opportunities will be presented for interdepartmental collaboration and exposure to joint research efforts between the services, educational institutions, small businesses, and other federal agencies.

### Where will I be located?

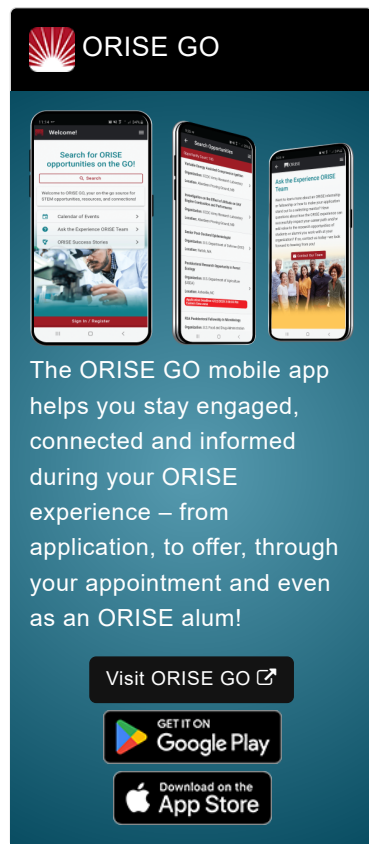
Joint Base San Antonio Lackland, Texas

### What is the anticipated start date?

September 25, 2023

### What is the appointment length?

This appointment is an 12-month research appointment, 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.



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#### What are the benefits?

You will receive a stipend to be determined by DHA-JBSA. Stipends are typically based on a 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

#### About Defense Health Agency (DHA-JBSA)

The Defense Health Agency is a joint, integrated Combat Support Agency that enables the Army, Navy, and Air Force medical services to provide a medically ready force and ready medical force to Combatant Commands in both peacetime and wartime. The DHA uses the principles of Ready Reliable Care to advance high reliability practices across the Military Health System by improving our system operations, driving innovative solutions, and cultivating a culture of safety. For more information about the Defense Health Agency, please visit [Defense Health Agency | Health.mil](https://www.health.mil).

#### About ORISE

This program, administered by Oak Ridge Associated Universities (ORAU) through its contract with the U.S. Department of Energy (DOE) to manage the Oak Ridge Institute for Science and Education (ORISE), was established through an interagency agreement between DOE and DoD. Participants do not enter into an employee/employer relationship with ORISE, ORAU, DoD or any other office or agency. Instead, you will be affiliated with ORISE for the administration of the appointment through the ORISE appointment letter and Terms of Appointment. Proof of health insurance is required for participation in this program. Health insurance can be obtained through ORISE. For more information, visit the [ORISE Research Participation Program at the U.S. Department of Defense](https://orise.doe.gov).

**Qualifications** The qualified candidate will be pursuing a Doctoral degree in Biomedical Engineering, Biomedical Sciences, Cell and Molecular Biology, or closely related discipline.

Highly competitive applicants will have excellent communication skills, have experience in independent and team atmospheres, and exhibit patience and flexibility. Additionally, they will have education and/or experience in one or more of the following:

- in vitro cell culture
- coagulation cascade
- technical writing reports / PowerPoint presentations
- microbiology and cell biology techniques such as culturing, live dead assays, proliferation assays, and aseptic technique
- biosafety practices, pipetting, dilutions, unit conversions, and laboratory mathematics
- bench skills including proficiency in cell culture, and in vitro screening assays such as live dead assay, luminescence, proliferation and viability assays.
- graphing software such as GraphPad Prism and Sigma plot

#### Application Requirements

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A complete application consists of:

- Zintellect Profile
- Educational and Employment History
- Essay Questions (goals, experiences, and skills relevant to the opportunity)
- Resume (PDF)
- Transcripts/Academic Records - Please upload a copy of a transcript for your current or most recent degree program that meets the disciplinary qualifications of the opportunity. [Click here for detailed information about acceptable transcripts.](#)
- One Recommendation. Your application will be considered incomplete and will not be reviewed until one recommendation is submitted. We encourage you to contact your recommender as soon as you start your application to ensure they are able to complete the recommendation form and to let them know to expect a message from Zintellect. Recommender will be asked to rate your scientific capabilities, personal characteristics, and describe how they know you. You can always log back in to your Zintellect account and check the status of your application.
- If you have questions, send an email to [Orisedod@orise.orau.gov](mailto:Orisedod@orise.orau.gov). Please list the reference code of this opportunity [DHA-JBSA-2023-0001] in the subject line of the email. Please understand that ORISE does not review applications or select applicants; selections are made by the sponsoring agency identified on this opportunity. All application materials should be submitted via the "Apply" button at the bottom of this opportunity listing. Please do not send application materials to the email address above.

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- Eligibility Requirements**

- **Citizenship:** LPR or U.S. Citizen
  - **Degree:** Currently pursuing a Doctoral Degree.
  - **Discipline(s):**
    - **Engineering** ([1](#) )
    - **Life Health and Medical Sciences** ([2](#) )