

Opportunity Title: Application of AI to Molecular Biology and Drug Discovery for Corneal Injury, Bachelor's Level Researcher

Opportunity Reference Code: MRDC-MRICD-2024-00014

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 The Department of Defense (DOD) is offering a bachelor's level internship at the U.S. Army Medical Research Institute of Chemical Defense (USAMRICD).

What will I be doing?

Vesicants are a class of chemicals that induce injury on contact with exposed skin and mucous membranes. Treatments for these injuries are only generally supportive as no specific treatments exist. In cases of severe acute chemical injury, long term prognosis is often poor and involves interaction of many biological pathways. We are applying artificial intelligence (AI), machine learning (ML), and convolutional neural networks (CNNs) to accelerate novel therapeutic development by investigating complex relationships between assay results, omics data, and medical images. These AI efforts will be coupled with siRNA high throughput screening (siRNA HTS) to identify therapeutic targets and test targets in animal models developed by our lab. This approach is similar to that used by pharmaceutical companies to develop drugs and treatments for other injuries and diseases. This research involves in vitro, in vivo, and in silico techniques including cell culture, siRNA HTS, multiplexed immunoassays, cell viability assays, robotic liquid handlers, small animal surgery, tissue dissection, immunoassays, small animal ocular exams, data analysis, and machine learning. For more information, please contact Albert L. Ruff, PhD at albert.l.ruff2.civ@health.mil or 410-436-8456.

What should I apply?

As an ORISE participant you will gain hands-on experience under the guidance of a mentor to support their academic and professional goals. As the participant finds success in their research efforts, they will have the opportunity to present their research findings at a national conference(s), and author or co-author a manuscript(s). This is an excellent opportunity for a motivated BS-level scientist to explore a career in government research and apply their technical skills in a multidisciplinary and translational environment.

The candidate will receive an annual stipend of ~\$54,754 (\$4562/month). Stipends are typically based on a participant's academic standing, discipline, and experience.

Where will I be located?

Gunpowder, Maryland

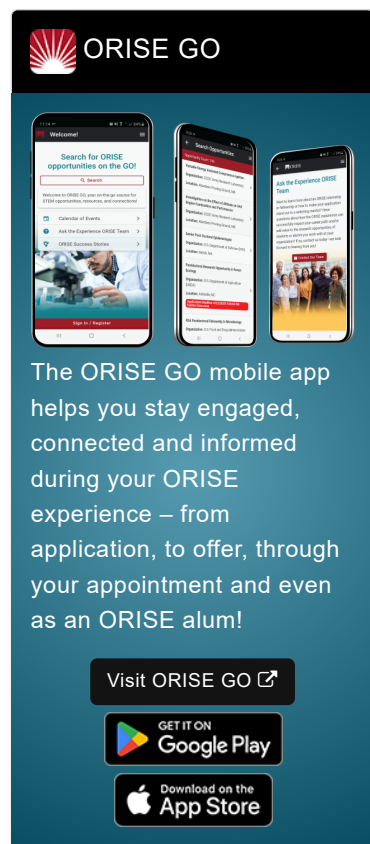
What is the anticipated start date?

The MRICD is ready to make appointments immediately. Exact start dates will be determined at the time of selection and in coordination with the selected candidate. Applications are reviewed on an ongoing basis and internships or fellowships will be filled as qualified candidates are identified.

What is the appointment length?

Appointments are initially for one year with the option to extend the appointment for up to four additional years, contingent upon project needs and funding availability.

About MRICD



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The U.S. Army Medical Research Institute of Chemical Defense (USAMRICD) is the Department of Defense's lead laboratory for medical chemical defense research. As a subordinate element of the U.S. Army Medical Research and Development Command (USAMRDC), the institute conducts research for development of medical countermeasures to treat exposure to various chemical threat agents for protection of soldiers and civilians. Scientific disciplines at USAMRICD include, but are not limited to, chemistry, biology, biochemistry, pharmacology, molecular biology, neuroscience, toxicology, physiology, psychology, and immunology.

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](#).

Qualifications The qualified candidate will have completed a BS or BA in biochemistry, molecular biology, cell biology, biology, bioinformatics, computational biology, or a related field. Degree must have been received within five years of the appointment start date or by June 2025. U.S. military veterans who have been honorably discharged (or who have been medically discharged because of a service-connected disability) and who received a BS or BA degree within ten years of the desired start date are also eligible.

Highly competitive applicants will have education and/or experience in one or more of the following:

- Experience utilizing Python, R, or other programming languages.
- Experience with principal component analysis (PCA), ingenuity pathway analysis (IPA), Reactome, and machine learning techniques are a plus.
- Candidate must be willing to handle animals, human tissues, and cultured cells.
- Ideal candidates have interests in both biological sciences and using Python, R, or equivalent programming languages for data analysis.

Application Requirements

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 - 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](#).
- Two recommendations. We encourage you to contact your recommenders as soon as you

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start your application to ensure they are able to complete the recommendation form and to let them know to expect a message from Zintellect. Recommenders 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 ARMY-MRMC@orise.orau.gov. Please list the reference code of this opportunity [MRDC-MRICD-2024-00014] 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:** U.S. Citizen Only
 - **Degree:** Bachelor's Degree received within the last 60 months or anticipated to be received by 6/30/2025 11:59:00 PM.
 - **Overall GPA:** 3.00
 - **Discipline(s):**
 - **Computer, Information, and Data Sciences** ([1](#)👁)
 - **Life Health and Medical Sciences** ([10](#)👁)
 - **Age:** Must be 18 years of age
 - **Veteran Status:** Veterans Preference, degree received within the last 120 month(s).