

Opportunity Title: USAMRIID Post-Doctoral Fellowship - Genomics Molecular

Biology and Toxinology

Opportunity Reference Code: MRDC-USAMRIID-2024-0006

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 post-doctoral fellowship at the U.S. Army Medical Research and Development Command - Medical Research Institute of Infectious Diseases (USAMRDC MRIID). Located at Fort Detrick, Maryland, USAMRIID provides leading edge medical capabilities to deter and defend against current and emerging biological threat agents and seeks to advance medical biological defense to protect our military and the nation.

What will I be doing?

As an ORISE participant, you will join a community of scientists and researchers in an effort to investigate the value of DNA aptamers to neutralize toxins (palytoxins and conotoxins).

Why should I apply?

Under the guidance of a mentor, you will gain hands-on experience to support your academic and professional goals. Along the way, you will engage in activities and research in several areas. These include, but are not limited to:

- Identify and characterize DNA aptamers for different conotoxins (alpha, omega, and gamma) and Palytoxins, focusing on broad spectrum disruption of intoxication of their pharmacological targets: nicotinic acetylcholine receptor antagonists (nAChR), sodium channel inhibitors (Na⁺), a1 adrenoreceptor inhibitors and sodium/potassium ATPase disruptors (Na/K ATPase) using a Systematic Evolution of Ligands by Exponential Enrichment (SELEX) process.
- Evaluate the selected DNA aptamers used *in vitro* systems.
- Analyze machine learning and AI algorithms applied to refined DNA aptamers for broad spectrum effects in the SELEX iterative refinement process.
- Support CGS's mission to develop medical countermeasures against pathogens and toxins. The goal of this project is to develop anti-toxin DNA aptamers that should be able to neutralize a variant array of synthetic and natural toxins.
 - Aim 1: Develop Palytoxin aptamer library and mature in vitro for reducing Na/K-ATPase disruption for PLTX and 42-hydroxy-PLTX intoxication.
 - Aim 2: Develop Conotoxin aptamer library and mature in vitro for reducing nAChR intoxication. Five a-conotoxins of varying sequence and structure will be selected for synthesis.
 - Aim 3: Apply machine learning and AI algorithms to analyze and refine DNA aptamers for broad spectrum effects in the SELEX iterative refinement process.

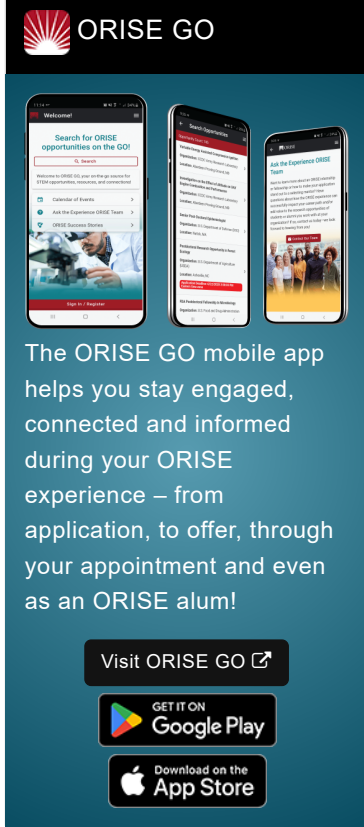
The candidate will participate in Biosafety level (BSL)-2, BSL-3 and BSL-4 laboratories and handle controlled substances thus must hold and maintain Biological Personnel Reliability Program (BPRP) and Controlled Substances Personnel Reliability Program (CS-PRP) status, in accordance with the provisions of the ORISE agreement and applicable regulations.

Where will I be located?

Fort Detrick, Maryland

What is the anticipated start date?

Early September 2024 is the preferred start date. Exact start dates will be determined at the time



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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?

This appointment is a twelve-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.

What are the benefits?

You will receive a stipend to be determined by USAMRIID. 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

Security Clearance

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.

- CS-PRP enrollment is required and will be held and maintained in accordance with the provisions of the ORISE agreement and all applicable regulations.
- BPRP enrollment is required and will be held and maintained in accordance with the provisions of the ORISE agreement and all applicable regulations.

About USAMRIID

USAMRIID's reputation has been built over the years by numerous scientists and technical staff working to protect both military personnel and civilians from the threat of infectious diseases. The Institute participates in support of emerging disease investigations, working alongside colleagues from the Centers for Disease Control and Prevention and the World Health Organization. As a reference laboratory for the Department of Defense, USAMRIID sets the standard for identification of biological agents. The Institute's workforce represents some of the top infectious disease and biological defense experts in the Nation—indeed, in the world. For more information about the USAMRIID, please visit [U.S. Army Medical Research Institute of Infectious Diseases \(USAMRIID\) \(health.mil\)](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://www.orise.gov).

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Qualifications The qualified candidate will have a Ph.D. in molecular biology, computer science/engineering, and/or other biological/medical sciences. U.S. Citizenship is required.

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

- Familiar with basic concepts of toxicology.
- Experience conducting some research in the area of genetics, toxicology and/or infectious diseases.
- Some knowledge in the field of computer science and has some familiarity with programming languages and Linux computing environments.

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 recommender(s) 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. 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-USAMRIID-2024-0006] 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:** Doctoral Degree received within the last 60 month(s).
- **Discipline(s):**
 - **Computer, Information, and Data Sciences** ([1](#) )
 - **Life Health and Medical Sciences** ([7](#) )