

**Opportunity Title:** Chemistry Fellowship - Bachelor's Degree

**Opportunity Reference Code:** NAMRU-SA-2022-0001

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

**Reference Code** NAMRU-SA-2022-0001

**How to Apply** Click on *APPLY* now to start your application.

**Description** Naval Medical Research Unit San Antonio (NAMRU-SA) is located on the San Antonio Military Medical Center Campus, Joint Base Fort Sam Houston, Texas, and serves as one of the leading research and development laboratories of the U.S. Navy under the Department of Defense. The laboratory is one of eight subordinate research commands in the global network of laboratories operating under the Naval Medical Research Center (NMRC), Silver Spring, Maryland. NAMRU-SA's Mission is to conduct medical, craniofacial, and biomedical research, which focuses on ways to enhance the health, safety, performance, and operational readiness of Navy and Marine Corps personnel and addresses their emergent medical and oral/facial problems in routine and combat operations.

#### What will I be doing?

Under the guidance of a mentor, you will have an opportunity to learn about crystallization method of organic chemicals, structural characterization using powder X-ray diffraction, sono- and mechanochemistry to synthesize cocrystals of varying particle sizes, synthesis of chitosan-based hydrogels, characterization of hydrogels (morphology, porosity, mechanical, swelling, and dissolution properties), production scale-up of the cocrystal hydrogel material for commercialization and manufacturing, in vitro testing methods (hemostasis, antimicrobial activity, wound healing activity, and stability in an austere environment), scanning electron microscopy, in vivo testing methods (rodent/swine model of uncontrolled hemorrhage). Research includes:

- Synthesize the cocrystal at various particle sizes using different crystallization methods.
- Characterize bulk properties (e.g., particle size distribution and solubility) of the resulting cocrystals.
- Synthesize chitosan wound dressings of the cocrystal and characterize their bulk properties.
- Measure hemostatic activity and antimicrobial properties.
- Perform maintenance of shared laboratory space and equipment.
- Measure wound healing efficacy of the cocrystal hydrogel on various cells.
- Measure decomposition of cocrystals in a high temperature and high humidity environment.
- Test the therapeutics' in vitro bioavailability, blood clot promotion, and antibacterial properties.

#### Why should I apply?

This internship provides the opportunity to independently utilize your skills and engage with experts in innovative ideas to move the proposed research forward. There are multiple opportunities available to engage in your applied research and evaluation interests.

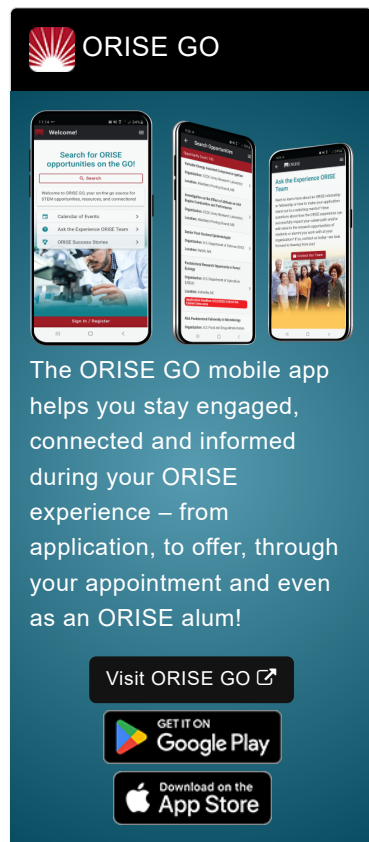
**Where will I be located?** San Antonio, Texas

#### What is anticipated start date?

NAMRU-SA is ready to make an appointment immediately. Exact start date will be determined at the time of selection and in coordination with the selected candidate.

#### What is the length of the appointment?

This ORISE appointment is a full-time twelve month duration. Appointments may be extended depending on funding availability, project assignment, program rules, and availability of the



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participant.

**What are the benefits?**

You will receive a stipend to be determined by NAMRU-SA. 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**

You will not enter into an employee/employer relationship with ORISE, ORAU, DOD, or any other office or agency. Instead, the you will be affiliated with ORISE for the administration of the appointment through the ORISE appointment letter and Terms of Appointment.

- Additional information that may be included if applicable:

While you 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**

You must possess a bachelor's degree in Chemistry or Biology and have experience and hands-on knowledge in basic chemistry laboratory equipment and techniques, including but not limited to liquid chromatography, mass spectrometry, and UV/Vis spectroscopy. Knowledge of computer software, including the Microsoft Office Suite and graphics software is desired.

A complete application consists of:

- Zintellect profile
- Essay Questions - The application includes questions specific to the opportunity.
- Academic Records - For this opportunity, an official transcript or copy of the student academic records printed by the applicant or by academic advisors from internal institution systems may be submitted.
- Current Resume/CV
- One (1) Recommendation - Applicants are required to provide contact information for at least one recommendation. You are encouraged to request a recommendation from a professional who can speak to your abilities and potential for success as well as your scientific capabilities and personal characteristics. Recommendation requests must be sent through the Zintellect application system. Recommenders will be asked to complete a recommendation in Zintellect. Letters of recommendation submitted via email will not be accepted.

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. All documents must be in English or include an official English translation. If you have questions, send an email to [navy@orise.orau.gov](mailto:navy@orise.orau.gov). Please list the reference code of this opportunity NAMRU-SA-2022-0001 in the subject line of the email.

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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 6/30/2022 11:59:00 PM.
  - **Discipline(s):**
    - **Chemistry and Materials Sciences** ([12](#) 👁)
    - **Earth and Geosciences** ([2](#) 👁)
    - **Life Health and Medical Sciences** ([48](#) 👁)
    - **Physics** ([16](#) 👁)
    - **Science & Engineering-related** ([1](#) 👁)