Opportunity Title: FDA Anti-Biofilm Technology Development Research Fellowship
Opportunity Reference Code: FDA-ORA-2022-01

Organization U.S. Food and Drug Administration (FDA)

Reference Code FDA-ORA-2022-01

How to Apply A complete application consists of:

- An application
- Transcripts – Click here for detailed information about acceptable transcripts
- A current resume/CV, including academic history, employment history, relevant experiences, and publication list
- Three educational or professional recommendations

All documents must be in English or include an official English translation.

If you have questions, send an email to ORISE.FDA.OC.other@orau.org. Please include the reference code for this opportunity in your email.

Description ***Applications will be reviewed on a rolling-basis, and this opportunity will remain open until filled.**

A research opportunity is currently available at the U.S. Food and Drug Administration (FDA), Office of Regulatory Affairs (ORA) located in Winchester, Massachusetts.

The selected participant will be involved in designing light inducible photothermal surface functionalization on selected implant surfaces. The fellow will assist in evaluating the safety and efficacy of these nano-functionalized surfaces in inhibiting biofilm formation of implant infection-associated pathogens including nontuberculous mycobacteria (NTM) and Staphylococcus aureus. The fellow will participate in all phases of designing, optimizing and characterization of nano-functionalized implant surfaces and development of anti-biofilm technologies against pathogens.

Under the direction of a principal investigator, the fellow will be involved in the following activities:

- Prepare, optimize and characterize implant surfaces functionalized with Nanoparticles of various size and shapes independently
- Perform cell-based cytotoxicity assays
- Establish bacterial biofilms using static and continuous flow models
- Perform bacterial enumeration and viability assays
- Perform photo-thermal laser ablation of bacterial biofilms
- Analyze data and synchronize results
- Apply critical thinking and sound judgment when solving problems
- Maintain regular communication with the mentor by providing weekly progress updates, discuss any problems incurred in data collection or conducting studies, and making recommendations for improvements
- Write and submit manuscripts to peer-reviewed journals
- Present research findings to scientific and non-scientific audiences

Learning objectives will include:

- Develop strong analytical skills and lean how to approach problems with scientifically sound methodologies and creativity.
- Learn various biofilm modeling and quantification methodologies
- Communicate scientific operations to nonscientific audiences.

This opportunity also provides the selected research fellow with an

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excellent opportunity to:

- Collaborate with FDA scientists in diverse research laboratories throughout the project
- Learn about FDA regulatory processes
- Present research finding at various national and/or international scientific meetings
- Author peer-reviewed journal articles and contribute to grant proposals
- Communicate scientific operations to nonscientific audiences.

Anticipated Appointment Start Date: As soon as a qualified candidate is identified (start date is flexible)

This program, administered by ORAU through its contract with the U.S. Department of Energy to manage the Oak Ridge Institute for Science and Education, was established through an interagency agreement between DOE and FDA. The initial appointment is for three to four months, but may be renewed upon recommendation of FDA contingent on the availability of funds. The participant will receive a monthly stipend commensurate with educational level and experience. Proof of health insurance is required for participation in this program. The appointment is full-time at FDA in the Winchester, Massachusetts, area. Participants do not become employees of FDA, DOE or the program administrator, and there are no employment-related benefits.

Completion of a successful background investigation by the Office of Personnel Management is required for an applicant to be on-boarded at FDA. OPM can complete a background investigation only for individuals, including non-US Citizens, who have resided in the US for a total of three of the past five years.

FDA requires ORISE participants to read and sign their FDA Education and Training Agreement within 30 days of his/her start date, setting forth the conditions and expectations for his/her educational appointment at the agency. This agreement covers such topics as the following:

- Non-employee nature of the ORISE appointment;
- Prohibition on ORISE Fellows performing inherently governmental functions;
- Obligation of ORISE Fellows to convey all necessary rights to the FDA regarding intellectual property conceived or first reduced to practice during their fellowship;
- The fact that research materials and laboratory notebooks are the property of the FDA;
- ORISE fellow’s obligation to protect and not to further disclose or use non-public information.

Qualifications

The qualified candidate should be currently pursuing or have received a master's or doctoral degree in one of the relevant fields. Degree must have been received within the past five years.

Preferred skills:

- Strong background in nanomaterial fabrication and characterization to be part of this highly interdisciplinary research project
- Strong background in techniques such as Scanning Electron Microscopy, XPS, mammalian cell culture-based assays
- Capable of learning, designing and optimizing protocols in nanomaterial characterizations, mammalian cell-based assays and photo-thermal laser ablations of bacterial biofilms
- Ability to execute experiments and troubleshoot problems independently

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- Ability to organize well and adhere to deadlines when delivering results
- Excellent written and verbal communication skills and ability to convey ideas and concepts to scientific and non-scientific audiences

Eligibility Requirements

- **Citizenship:** LPR or U.S. Citizen
- **Degree:** Master's Degree or Doctoral Degree received within the last 60 months or currently pursuing.
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (12 👁)
  - **Communications and Graphics Design** (1 👁)
  - **Engineering** (4 👁)
  - **Life Health and Medical Sciences** (48 👁)
  - **Physics** (16 👁)
  - **Science & Engineering-related** (1 👁)

Affirmation Have you lived in the United States for at least 36 out of the past 60 months? (36 months do not have to be consecutive.)