Opportunity Title: FDA Research Fellowship in Evaluating the Safety and Efficacy of Personal Protective Equipment Fabrics for Barrier Performance Against Respiratory Emissions
Opportunity Reference Code: FDA-ORA-2024-0003

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

Reference Code FDA-ORA-2024-0003

How to Apply ***To submit your application, scroll to the bottom of this opportunity and click 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
- One educational or professional recommendation. Your application will be considered incomplete, and will not be reviewed until one recommendation is submitted.

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.

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Description ***Applications will be reviewed on a rolling-basis.**

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

Research Project: The U.S Food and Drug Administration (FDA), Office of Regulatory Affairs (ORA), Winchester Engineering and Analytical Center (WEAC) in collaboration with the Center for Disease Control (CDC), National Institute for Occupational Safety and Health (NIOSH) and the Massachusetts Institute of Technology (MIT) is evaluating personal protective equipment (PPE) fabric for penetration by simulated respiratory emission to enhance the robustness of PPE design and testing and potentially improve the safety for healthcare workers and the public during outbreaks of respiratory illnesses. . We are seeking a highly motivated recent graduate with a strong background in fluid dynamics, material science, engineering, infectious diseases, or closely related disciplines to be part of this highly interdisciplinary research project.

The project aims to evaluate PPE Fabrics for barrier performance against penetration by respiratory droplets bearing noninfectious Covid-19-Virus-like-particles in a simulated laboratory environment.

This project will lay the essential groundwork for mitigating future risks by preparing the public health agencies to better evaluate PPE effectively and adequately. The successful candidate will learn about evaluating various PPE fabrics for their resistance to penetration of simulated respiratory droplets bearing noninfectious COVID-19-virus-like particles generated via a cough-and-sneeze simulator, then compare the barrier performance of PPE fabrics exposed to the

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cough and sneeze simulator with other standard test methods.

Learning Objectives: Under the guidance of a mentor, specific leaning opportunities are (but are not limited to):

- Prepare, optimize, and characterize COVID-19-virus-like particles containing respiratory droplets in terms of size distribution/zeta potential/surface charge measurements using scanning electron microscopy and dynamic light scattering.
- Projectile testing of respiratory fluids using a cough-and-sneeze simulator.
- Test the resistance of PPE fabrics against respiratory droplets containing COVID-19-virus-like-particles and determine the detection efficiency.
- Evaluate barrier performance of PPE fabrics exposed to respiratory droplets with other standard test methods.

Anticipated Appointment Start Date: August 1, 2024. Start date is flexible and will depend on a variety of factors.

Appointment Length: The appointment will initially be for 8 months, but may be renewed upon recommendation of FDA and is contingent on the availability of funds.

Level of Participation: The appointment is full time.

Citizenship Requirements: This opportunity is available to U.S. citizens, Lawful Permanent Residents (LPR), and foreign nationals. Non-U.S. citizen applicants should refer to the Guidelines for Non-U.S. Citizens Details page of the program website for information about the valid immigration statuses that are acceptable for program participation.

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 participant will receive a monthly stipend commensurate with educational level and experience. Proof of health insurance is required for participation in this program. 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 Ethics Requirements

If an ORISE Fellow, to include their spouse and minor children, reports what is identified as a Significantly Regulated Organization (SRO) or prohibited investment fund financial interest in any amount, or a relationship with an SRO, except for spousal employment with an SRO, and

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the individual will not voluntarily divest the financial interest or terminate the relationship, then the individual is not placed at FDA. For additional requirements, see FDA Ethics for Nonemployee Scientists.

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 have received a bachelor's, master's, or doctoral degree in the one of the relevant fields (e.g. material science, engineering, microbiology, infectious diseases, or a closely related discipline). Degree must have been received within the past five years.

Preferred skills:

- Strong experience in Nanoparticle characterization techniques, Scanning Electron Microscopy, Dynamic Light Scattering and Programing in MATLAB or R is highly desirable.
- Willingness to learn new technologies and methods and operate outside their comfort zone is highly desirable

Eligibility Requirements

- **Degree:** Bachelor's Degree, Master's Degree, or Doctoral Degree received within the last 60 month(s).
- **Discipline(s):**
  - **Engineering** (27 👁)
  - **Life Health and Medical Sciences** (51 👁)
  - **Science & Engineering-related** (1 👁)

Affirmation

I have lived in the United States for at least 36 out of the past 60 months. (36 months do not have to be consecutive.)
and
I have read the FDA Ethics Requirements.