Opportunity Title: FDA Fellowship in Wastewater Surveillance Testing
Opportunity Reference Code: FDA-CFSAN-2022-22

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

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How to Apply ***Connect with ORISE...on the GO!*** Download the new ORISE GO mobile app in the Apple App Store or Google Play Store to help you stay engaged, connected, and informed during your ORISE experience and beyond!

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

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

If you have questions, send an email to ORISE.FDA.CFSAN@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), Center for Food Safety and Applied Nutrition (CFSAN), located in College Park, Maryland.

The FDA received funding to build public health capacity, in the form of SARS CoV-2 (SC2) surveillance, by expanding the GenomeTrakr network of state and local laboratories that conduct genomic pathogen surveillance for rapid investigation of illness and outbreaks. This includes a more integrated infrastructure and funding for public health sequencing of human, animal and plant pathogens through a distributed lab infrastructure including public and private labs, all feeding the information into publicly-accessible, open databases.

The selected fellow will assist in the development of metagenomic and metatranscriptomic sequencing workflows that can be implemented and integrated into the framework of wastewater surveillance testing methods for SC2. Specifically, nucleic acid extraction protocols to target SC2 will be optimized to reduce viral genome degradation, mitigate common inhibitors in wastewater samples, enhance sequence quality, and ease of use and automation. Sequencing library preparation will follow established protocols with optimization for the sample matrix and will include several process controls, such as matrix recovery control, human fecal normalization, quantitative measurement controls, inhibition assessment, and negative controls. Library preparation methods will be assessed based on benchmark or previously characterized samples to determine optimal manufacturer protocols, including modifications, and multiplexing strategies.

The fellow will be involved in the following research activities:

- Optimization of RNA library preparation protocols and workflows for multiple sequencing platforms
- Generation and analysis of wastewater metagenome and metatranscriptome sequence data from long-read sequencing technologies (e.g. Nanopore & PacBio)
- Curation and maintenance of lab protocols and workflows, including version control and central repository maintenance
- Uploading wastewater sequence data to NCBI SRA and GISAID
- Communication with other project workgroups to facilitate a cohesive study design.
- Following experimental protocols and document findings in a laboratory notebook.
- Communicating with supervisors on a daily basis.
- Assisting supervisors to prepare reports for communicating results to CFSAN, FDA, and the scientific community.

Under the guidance of a mentor, the participant will have the following learning opportunities:

- Participating alongside a research team, the ORISE fellow will learn how FDA responds to emergencies such as a pandemic.
- The ORISE fellow will also learn how to integrate into a research team, to be responsible for certain aspects of a research program and study and communicate effectively with team members and other stakeholders.
- Contributing research to the Division and Office, the ORISE fellow will be expected to complete all required training and as such will learn about all applicable aspects of laboratory safety and elements of a quality assurance plan.
- Training will be made available, so that the ORISE fellow is proficient in all of the above responsibilities and these can be conducted successfully

Anticipated Appointment Start Date: September 1, 2022; 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 one year, 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 College Park, Maryland 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:

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- 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 a bachelor's or master's degree in one of the relevant fields (e.g. Microbiology, Biology, Genetics, Genomics).

Preferred skills/experience:

- Previous experience with foodborne pathogens in a laboratory setting
- Experience with platforms that generate next-generation sequence data, with some experience with long-read sequencing
- A working understanding of genomics and biology as it relates to whole-genome sequencing, de novo genome assembly, and QC/QA of whole-genome sequence data
- Experience with Linux, Microsoft Office Suite, i.e. Word, Excel, PowerPoint, and Outlook

Eligibility Requirements

- **Citizenship:** LPR or U.S. Citizen
- **Degree:** Currently pursuing a Bachelor's Degree or Master's Degree.
- **Discipline(s):**
  - **Life Health and Medical Sciences** (48 👁)

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.)