Opportunity Title: FDA Fellowship in Phenotype to Genotype Development and Streamlining of Microbiome Laboratory and Bioinformatic Methods for Food and Food Ecologies
Opportunity Reference Code: FDA-CFSAN-2022-14

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

Reference Code FDA-CFSAN-2022-14

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.

Application Deadline 7/19/2022 3:00:00 PM Eastern Time Zone

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

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 selected participant's training will focus on developing laboratory and bioinformatic skills for the generation and analysis of microbiome and whole genome sequence data for FDA and evaluating phenotypic prediction instrumentation.

The participant will receive hands-on training in the following tasks:

- 1. Collection, processing, and sequencing of whole genome, microbiomes and metagenomes of food and related environmental sample of interest to FDA stakeholders.
- 2. Analysis of NGS sequence data from food ecology samples using available bioinformatic software and instrumentation and other customized pipelines as well as evaluation and development of emerging analytical solutions.
- 3. Shotgun metagenomic analysis, including taxonomic and functional annotation using programs as needed.
- 4. Microbiome profiling using 16S rRNA gene amplicons, including sample preparation, sequencing and data analysis using an in-house bioinformatic pipeline.
- 5. The integration of custom novel pipelines into CFSAN HPC modules.
- 6. Evaluation of results from the perspective of forensic DNA typing virulence prediction to include review of controls, replicate sampling, reproducibility, and confidence statements.
- 7. Report generation. Review of reports for clarity and consistency.
- 8. Analysis approaches of whole genome and microbiome deep

Opportunity Title: FDA Fellowship in Phenotype to Genotype Development and Streamlining of Microbiome Laboratory and Bioinformatic Methods for Food and Food Ecologies
Opportunity Reference Code: FDA-CFSAN-2022-14

sequencing, to include mixture ratios, species identification, quantitative and qualitative variation over time, sampling, and confidence statements using E. coli Reference Center isolates.
- 9. Laboratory QC from the perspective of common forensic DNA typing practices.

The project assignments should provide the participant with the opportunity to receive hands-on experience that complements his/her educational and professional background and helps the participant gain knowledge in areas related to the CFSAN food safety mission.

Anticipated Appointment Start Date: August 22, 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:

- 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 or master's degree in one of the relevant fields (e.g. Microbiology, Forensics, Molecular Genetics, Genomics), or be currently pursuing one of the degrees with completion by July 11, 2022. Degree must have been received within five years of the appointment start date.

Candidates having a minimum of one year of molecular laboratory experience since receiving their degree are preferred.

Preferred skills/experience in:

- 1. Collection, processing, and sequencing of whole genome, microbiomes and metagenomes of food and related environmental sample of interest to FDA stakeholders.
- 2. Analysis of NGS sequence data from food ecology samples using available bioinformatic software and instrumentation and other

Opportunity Title: FDA Fellowship in Phenotype to Genotype Development and Streamlining of Microbiome Laboratory and Bioinformatic Methods for Food and Food Ecologies
Opportunity Reference Code: FDA-CFSAN-2022-14

customized pipelines as well as evaluation and development of emerging analytical solutions.

- 3. Shotgun metagenomic analysis, including taxonomic and functional annotation using programs as needed.
- 4. Microbiome profiling using 16S rRNA gene amplicons, including sample preparation, sequencing and data analysis and bioinformatic pipeline.
- 5. The integration of custom software pipelines into CFSAN HPC modules.
- 6. Evaluation of results from the perspective of forensic DNA typing virulence prediction to include review of controls, replicate sampling, reproducibility, and confidence statements.
- 7. Report generation. Review of reports for clarity and consistency.
- 8. Analysis approaches of whole genome and microbiome deep sequencing, to include mixture ratios, species identification, quantitative and qualitative variation over time, sampling, and confidence statements using E. coli Reference Center isolates.
- 9. Laboratory QC from the perspective of common forensic DNA typing practices.

Eligibility Requirements

- **Citizenship:** LPR or U.S. Citizen
- **Degree:** Bachelor's Degree or Master's Degree received within the last 60 months or anticipated to be received by 7/11/2022 11:59:00 PM.
- **Discipline(s):**
  - **Communications and Graphics Design** (6 👁)
  - **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.)