Opportunity Title: FDA Summer Internship
Opportunity Reference Code: FDA-CFSAN-2022-24

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

Reference Code FDA-CFSAN-2022-24

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 8/8/2022 3:00:00 PM Eastern Time Zone

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

Two research opportunities are currently available at the U.S. Food and Drug Administration (FDA), Center for Food Safety and Applied Nutrition (CFSAN), Office of Regulatory Science, located in College Park, Maryland.

Salmonella enterica is the leading cause of human gastroenteritis, responsible for millions of infections and deaths each year in the United States. Genetic adaptations observed in Salmonella and other foodborne pathogens associated with food production and processing environment have become a public health concern. The persistent emergence of outbreaks attributed to certain serovars demonstrates adaptive characteristics of these organisms to certain food commodities. This highlights the probability of evolutionary changes in these pathogens, in which a selective advantage was conferred for survival, persistence and even growth within food matrices and in the environment, increasing their propensity for morbidity and mortality.

The goals of this project are to improve the ability to predict and apply key phenotypic and genotypic characteristics of recurring isolates from food industry and farms to ultimately assist in understanding the adaptive mechanisms of Salmonella and designing preventive controls. The focus for this internship will be conducting functional genomic studies to confirm fitness adaptations in an agricultural environment, with the expectation that these studies will lead to the identification of additional preventative control measures for pre-harvest environments.

Scope of Training:

- 1. Receive training in CFSAN and Division of Microbiology (DM) biosafety procedures for handling pathogenic bacterial cultures

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- 2. Receive training in DM laboratory methods, including generation and analysis of DNA sequence data from foodborne pathogens using MinION and Illumina next generation sequencing technologies.

The participant will assist in the following tasks during the specified period:

- 1. Assist in the investigation of Salmonella tolerance to copper sulfate through different assays including growth kinetic assays, gene expression, and stress response experiments
- 2. Assist with greenhouse studies for the confirmation of fitness adaptations on vine-stock produce using a library generated through transposon mutagenesis (confirmed via TraDIS).
- 3. Assist with data management on all above stated projects as well as other research related activities.
- 4. Follow experimental protocols and document findings in a laboratory notebook.
- 5. Communicate with supervisors on a daily basis.
- 6. Assist supervisors to prepare reports for communicating results to CFSAN, FDA, and the scientific community

Anticipated Appointment Start Date: June 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 two and a half 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 Bedford Park, Illinois, 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 a bachelor's degree in one of the relevant fields.

Preferred skills/experience:

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- Competency in basic microbial assays (serial dilutions, various plating methods, bacterial culture preparation, etc).
- Experience from at least one microbiology course and wet-lab experience working with microorganisms
- Familiarity with basic molecular biology methods such as PCR, primer design, and electrophoresis
- Experience working with food and/or foodborne pathogens
- Ability to perform literature in PubMed, proficiency in MS Excel worksheet and other visual or graphic making tools.
- Ability to execute protocols, pay close attention to details and excellent communication skills

Eligibility Requirements

- **Citizenship:** LPR or U.S. Citizen
- **Degree:** Currently pursuing a Bachelor'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.)