

**Opportunity Title:** FDA Research Fellowship in Food Contamination

**Opportunity Reference Code:** FDA-CFSAN-2023-0003

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

**Reference Code** FDA-CFSAN-2023-0003

**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](mailto:ORISE.FDA.CFSAN@orau.org).

Please include the reference code for this opportunity in your email.

**Application Deadline** 5/13/2023 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), Office of Regulatory Science (ORS), located in College Park, Maryland.

Shiga toxin-producing E. coli (STEC) remain a serious and persistent threat to both food safety and public health. STEC causes around 170,000 illnesses a year in the United States and is easily transmissible to humans via contaminated food and water. Leafy greens are found to be particularly vulnerable to contamination by these microorganisms as they are commonly grown near livestock areas. Runoff from livestock areas often leads to contamination of not only adjacent surface waters, but likewise in manure products used in nearby fields and in intrusive wildlife often found in the growing region. Thus, leafy greens, which are almost always consumed raw, have been heavily implicated in a multitude of STEC outbreaks, most notably E. coli O157:H7 outbreaks. Given the endemic and recurring nature of STEC contamination of western grown lettuce, it is essential that new and improved mitigation strategies be implemented in the field in these regions.

Previous research focused upon fresh-cut tomatoes revealed naturally occurring bacteria capable of reducing pre-harvest Salmonella carriage on this commercially significant crop. Moreover, early metagenomic studies analyzing microbiome differences between east and west coast crops showed a significant degree of biodiversity in the microbiota of west coast tomatoes. Akin to these studies, the goal of this project is to understand differences in soil biodiversity between eastern and western U.S. leafy green growing regions and to identify a potential STEC biological control



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against STEC contamination of romaine lettuce grown in the western US. DNA will be isolated from soil samples near leafy green growing operations collected either from Yuma, Arizona (western) or Maryland (eastern). Libraries will be constructed using an Illumina Flex kit and shotgun metagenomic sequencing will be done on an Illumina NextSeq 2000 platform. Community-level physiological profiling (CLPP) will be performed using Biolog EcoPlate™. Soil microorganisms will be isolated and identified for potential biological control use with Biolog GenIII microbial identification system and agar plug assay.

#### Scope of Training:

Under the guidance of a mentor, the ORISE Participant will assist in the following research activities during the specified period, including:

- CFSAN and Division of Microbiology (DM) biosafety procedures for handling pathogenic bacterial cultures
- DM laboratory methods, including generation and analysis of DNA sequence data from foodborne pathogens using Illumina next generation sequencing technologies, Physiological profiling of soil samples using Biolog EcoPlate, GenIII microbial identification and agar plug assay for inhibitory concentration testing.
- Data analyses.
- Assist with data management on all above stated project as well as other research related activities.
- Follow experimental protocols and document findings in a laboratory notebook.
- Communicate with mentor on a daily basis.
- Assist mentor in preparing reports for communicating results to CFSAN, FDA, and the scientific community

#### **Anticipated Appointment Start Date: May 2023; 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 2.5 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 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 degree.

Preferred skills/ knowledge:

- Previous experience with foodborne pathogens in a laboratory setting.
- Experience with Microsoft Office Suite, i.e. Word, Excel, PowerPoint, Outlook, etc.

- Eligibility**
- **Citizenship:** U.S. Citizen Only
- Requirements**
- **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.)