

Opportunity Title: FDA Functional Genomics Fellowship

Opportunity Reference Code: FDA-CFSAN-2024-0020

Organization

U.S. Food and Drug Administration (FDA)

Reference Code

FDA-CFSAN-2024-0020

How to 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

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

7/31/2024 3:00:00 PM Eastern Time Zone

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 Center for Food Safety and Applied Nutrition (CFSAN), located at College Park, Maryland.

The Center for Food Safety and Applied Nutrition, known as CFSAN, provides services to consumers, domestic and foreign industry and other outside groups regarding field programs; agency administrative tasks; scientific analysis and support; and policy, planning and handling of critical issues related to food, dietary supplements, and cosmetics.

Research Project: Salmonella spp. is one of the leading causes of human gastroenteritis worldwide and poses a serious health concern. Many varieties of produce have been associated with foodborne outbreaks caused by Salmonella. The wide spectrum of food commodities that Salmonella serovars are associated with highlights the adaptability of this pathogen to a variety of different food growing and processing environments. Even with our improved understanding of host-pathogen interactions underlying the infection process, our current knowledge on Salmonella survival and persistence in food growing and processing environment is still limited. In vitro evidence showed that certain Salmonella serovars can survive and persist under different environment conditions. Several genomic and population-based studies also revealed that the distinction between Salmonella serovars in terms of adaptation is more complicated than just presence or absence of specific genes. With the rapid increasing of our Salmonella genome database, our knowledge of gene function has increasingly lagged, and hinders our understanding of the genetic basis of microbial phenotypes (survival and persistence in agriculture environment in this case). High-throughput functional studies is needed to identify niche-specific essential genes. Genomic characterization and identification of niche-specific essential genes would greatly improve our understanding of adaptations of Salmonella serovars to certain environmental conditions.

The project uses gene modification including gene transfers and knockouts and knowledge with various DNA sequence analysis equipment and adjoining computational programs as well as other data analysis software. The fellow will be involved in RNA sequencing and Transposon-Directed Insertion Site Sequencing (TraDIS), to identify genes and other elements that may confer survival advantages to foodborne and environmental Salmonella in high stress environments.

Learning Objectives: The participant will have the opportunity to learn the following approaches including the subsequent analyses.

1. Perform Next Generation Sequencing technology to characterize foodborne pathogens
2. Perform gene modification from Salmonella and E. coli O121
3. Perform Transposon-Directed Insertion Site Sequencing (TraDIS)

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4. Follow experimental protocols and document findings in a laboratory notebook
5. Communicate with mentor on a daily basis
6. Assist mentor to prepare reports for communicating results to CFSAN, FDA, and the scientific community

The participant will also be able to utilize their knowledge about genetics and molecular biology from their education to enhance their career path by having a hands-on learning experience that will enable them to acquire experience they may need for future endeavors.

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

Appointment Length: The appointment will initially be for 3 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 only.

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 onboarded 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 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 be currently pursuing or have received a bachelor's degree in one of the relevant fields. Degree must have been received within the past five years.

Preferred skills:

- Some experience in genetics, molecular biology and microbiology.
- Experience with genetics (especially in gene modifications)
- Experience in next generation sequencing
- Experience with foodborne pathogens in a laboratory setting

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Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Bachelor's Degree received within the last 60 months or currently pursuing.
- **Discipline(s):**
 - **Life Health and Medical Sciences** ([51](#))

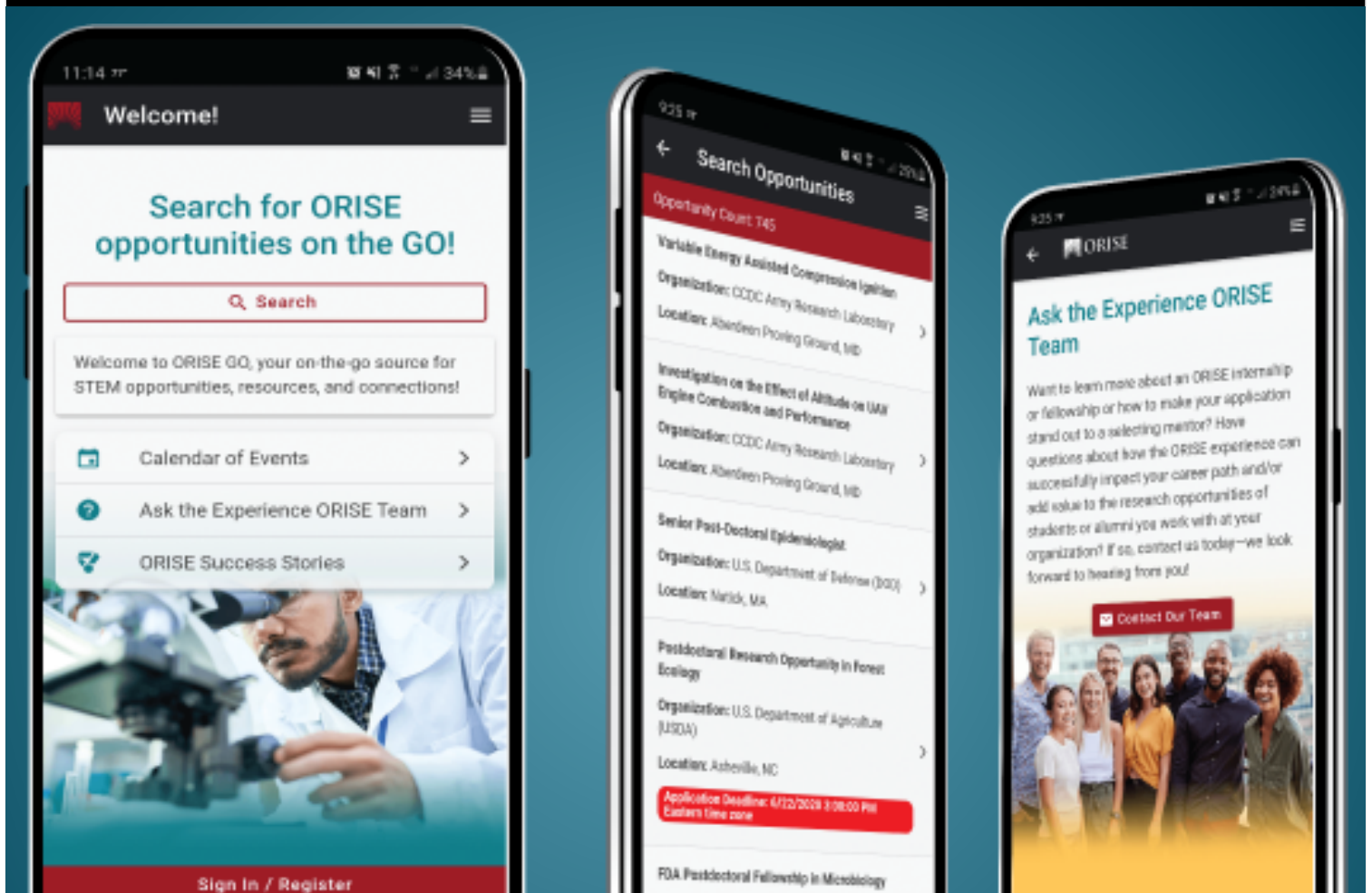
Affirmation

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.)

I have read the FDA Ethics Requirements.




OAK RIDGE INSTITUTE FOR SCIENCE AND EDUCATION



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