Opportunity Title: FDA Postdoctoral Fellowship in the Characterization of Toxic Heavy Metals within the USDA Sweet Potato Germplasm Collection
Opportunity Reference Code: FDA-CFSAN-2024-0027

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

Reference Code FDA-CFSAN-2024-0027

How to Apply ***To submit your application, scroll to the bottom of this opportunity and click 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.

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

FDA Office and Location: 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 the Office of Regulatory Science (ORS) in Charleston, South Carolina.

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: The research general objectives are to screen USDA, ARS sweet potato germplasm for accumulation of arsenic (As), cadmium (Cd), and lead (Pb) to identify germplasm and genetic markers that can be used in public breeding programs for development of varieties that have low levels of toxic heavy metals to ensure a safe source of food for human consumption. This project addresses a gap in knowledge in the accumulation potential of heavy metals in sweet potato. At the completion of these studies, the expectation is that we will have provided knowledge regarding the variation of heavy metal accumulation in storage roots and will have identified previously unknown sources of germplasm that are low accumulators of heavy metals. Successful completion of this project is expected to have important positive impacts for American agriculture by helping stakeholders anticipate and respond to the potential impact of heavy metal contamination poses to sweet potato production and provide a safe food supply within the US and around the globe. The rationale behind

this project is to be responsive to toxic heavy metal contamination of sweet potatoes used for baby food in support of the FDA's Closer to Zero initiative.

Successful completion of this project would identify sweet potato varieties that accumulate low levels of heavy metals that could be grown by home gardeners to reduce toxic heavy metals in baby foods until new varietal development is completed. In the short term, this project will not immediately reduce heavy metal contamination in commercially produced baby foods containing sweet potato, but rather provide a critical foundation for the sweet potato research community for addressing this issue. Specifically, this project will provide critically needed germplasm for breeding efforts aimed at reducing the heavy metal content in sweet potato thereby supporting the long-range improvement and sustainability of US agricultural and food systems. Additionally, the germplasm identified in this project will facilitate future studies on understanding the mechanisms of heavy metal accumulation in sweet potato.

Learning Objectives: Under the guidance of a mentor, the participant will gain experience in the following:

1. Characterize heavy metal accumulation in the USDA, ARS sweet potato germplasm collection.
    a. screen a core germplasm set of 48 sweet potato plant introductions (PIs) for combined As, Cd, and Pb accumulation.
    b. screen a diverse germplasm set of 300 sweet potato PIs for As, Cd, and Pb accumulation.

2. Identify genetic markers/regions associated with heavy metal accumulation in sweet potato.
    a. perform genome-wide association studies of As, Cd, and Pb accumulation.
    b. identify coding region variation within the heavy metal ATPase 3 gene and develop a derived cleaved amplified polymorphic sequence (dCAPS) marker for selection of low accumulating germplasm.

3. Initiate breeding for sweet potato varieties that are low accumulators of As, Cd, and Pb.

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 one year, 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 and Lawful Permanent Residents (LPR) 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

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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 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 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 have received a doctoral degree in one of the relevant fields (e.g., Food Science, Chemistry, Plant Genetics, Biology, Biochemistry), or be currently pursuing the degree.

Candidate should have completed at least two semesters of college-level coursework.

Preferred skills/knowledge include:

- Strong background and interest in genetics and plant breeding as well as analytical chemistry
- Experience with plant breeding, genetic and elemental analyses
- The ability to effectively communicate both verbally and in writing

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Eligibility Requirements

- **Citizenship:** LPR or U.S. Citizen
- **Degree:** Doctoral Degree.
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (3 👁)
  - **Life Health and Medical Sciences** (48 👁)

Affirmation

I am a U.S. citizen, or 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.)
and
I have read the FDA Ethics Requirements.