Opportunity Title: USDA-ARS Postdoctoral Fellowship in Rice Utilization and Cancer Prevention
Opportunity Reference Code: USDA-ARS-SEA-2025-0251

Organization U.S. Department of Agriculture (USDA)

Reference Code USDA-ARS-SEA-2025-0251

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

A complete application consists of:

- An application
- Transcript(s) – For this opportunity, an unofficial transcript or copy of the student academic records printed by the applicant or by academic advisors from internal institution systems may be submitted. Click here for detailed information about acceptable transcripts.
- A current resume/CV, including academic history, employment history, relevant experiences, and publication list
- Two educational or professional recommendations

All documents must be in English or include an official English translation.

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Application Deadline 2/27/2026 3:00:00 PM Eastern Time Zone

Description ***Applications are reviewed on a rolling-basis.**

ARS Office/Lab and Location: A research opportunity is currently available with the U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS), located in New Orleans, Louisiana.

The Agricultural Research Service (ARS) is the U.S. Department of Agriculture's chief scientific in-house research agency with a mission to find solutions to agricultural problems that affect Americans every day from field to table. ARS will deliver cutting-edge, scientific tools and innovative solutions for American farmers, producers, industry, and communities to support the nourishment and well-being of all people; sustain our nation's agroecosystems and natural resources; and ensure the economic competitiveness and excellence of our agriculture. The vision of the agency is to provide global leadership in agricultural discoveries through scientific excellence.

Research Project: The participant will conduct research on the anticancer properties of rice and other plant-derived bioactive compounds. The project integrates analytical chemistry, natural product isolation, and cell-based bioassays to identify and characterize compounds that inhibit breast cancer cell growth and reduce reactive oxygen species (ROS) generation.

The participant will:

1. Assess cytotoxicity and anticancer potential of plant extracts and purified compounds derived from rice, soybean, and sugarcane using

breast cancer cell lines.
2. Evaluate the ability of extracts and isolated bioactives to inhibit ROS formation and other stress-related pathways in cell-based models.
3. Collaborate with chemists to perform bioassay-guided fractionation to isolate, purify, and characterize active compounds.

The participant's research will directly support efforts to identify novel phytochemicals from rice and rice by-products. Current extracts from whole rice, rice bran, and rice hulls will be evaluated for biological activity, followed by purification and structural characterization of active components. This research also includes screening individual phytochemicals and extracts from additional plant materials to determine their anticancer and antioxidant activities.

Learning Objectives: The participant will receive extensive training in cell-based methods relevant to evaluating anticancer properties of natural products. Collaborating as part of a multidisciplinary team, the participant will gain experience in:

1. Mammalian cell culture and viability assays, including maintenance of cancer cell lines, execution of cytotoxicity assays, and quantification of growth inhibition.
2. Mechanistic cell-based assays, including measurement of oxidative stress, reactive oxygen species (ROS) modulation, apoptosis markers, and other pathways affected by bioactive compounds.
3. Analytical chemistry techniques for screening and characterizing phytochemicals, including extract preparation, chromatography, and bioassay-guided fractionation in collaboration with chemists.
4. Data analysis and interpretation, including statistical evaluation of dose–response effects, comparison of extract fractions, and integration of biological and chemical datasets.
5. Scientific communication and collaboration, including preparation of manuscripts, presentation of research findings, and coordination with researchers at Tulane University's cancer biology laboratories.

This training will prepare the participant for independent research careers in natural products chemistry, cancer biology, molecular pharmacology, or related biomedical fields.

Mentor(s): The mentor for this opportunity is Stephen Boue (steve.boue@usda.gov). If you have questions about the nature of the research, please contact the mentor(s).

Anticipated Appointment Start Date: February 2026. 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 ARS and is contingent on the availability of funds.

Level of Participation: The appointment is full time.

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Participant Stipend: The participant will receive a monthly stipend commensurate with educational level and experience. **The anticipated stipend range is $60,000 - $72,000 annually.**

Citizenship Requirements: This opportunity is available to U.S. citizens only.

ORISE Information: This program, administered by ORAU through its contract with the U.S. Department of Energy (DOE) to manage the Oak Ridge Institute for Science and Education (ORISE), was established through an interagency agreement between DOE and ARS. Participants do not become employees of USDA, ARS, DOE or the program administrator, and there are no employment-related benefits. Proof of health insurance is required for participation in this program. Health insurance can be obtained through ORISE.

Questions: Please visit our Program Website. After reading, if you have additional questions about the application process, please email ORISE.ARS.Southeast@orau.org and include the reference code for this opportunity.

Qualifications

The qualified candidate should be currently pursuing or have received a doctoral degree in the one of the relevant fields.

Preferred Skills:

- Knowledge of basic biochemistry and molecular biology lab techniques
- Background in mammalian cell culture, including maintaining breast cancer cell lines and performing cell viability, cytotoxicity, and oxidative stress assays.
- Experience with biochemical and molecular biology techniques, such as qPCR, Western blotting, colony formation assay, cell imaging, and apoptosis/ROS assays.
- Familiarity with natural products chemistry or phytochemical analysis, including extract preparation, chromatographic separation, or bioassay-guided fractionation.
- Experience analyzing complex biological data, including dose–response modeling, statistical comparisons of treatment effects, and integration of chemical and biological datasets.

Stipend $60,000.00 – $72,000.00 Yearly

Point of Contact Janeen

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Doctoral Degree.
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (12 👁)
  - **Engineering** (2 👁)
  - **Life Health and Medical Sciences** (39 👁)

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