

Opportunity Title: USDA-ARS Postdoctoral Research- Molecular Characterization for Foodborne Pathogens

Opportunity Reference Code: USDA-ARS-NEA-2026-0306

Organization U.S. Department of Agriculture (USDA)

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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
- A copy of an abstract or reprint of an article

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

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Application Deadline 10/9/2026 3:00:00 PM Eastern Time Zone

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

ARS Office/Lab and Location: A postdoctoral research opportunity focused on the molecular characterization of stress responses in foodborne pathogenic bacteria is available at the USDA, Agricultural Research Service, Eastern Regional Research Center, Characterization and Interventions for Foodborne Pathogens (CIFP) Research Unit in Wyndmoor, Pennsylvania

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 mission of the CIFP research unit is to investigate multiple areas of safety-related problems associated with contamination of food by bacterial pathogens and includes: stress response, evolution/mutation, biofilm formation, antimicrobial resistance, intervention techniques, and rapid detection & identification. The research project in this subgroup focuses on understanding how foodborne bacterial pathogens respond to selected food-related and other relevant intrinsic and extrinsic



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stresses. Foodborne pathogenic bacteria use complex molecular mechanisms to adapt and survive in the variety of harsh environmental conditions (meat animal host, production and processing chain, and in human host), yet many important details of these responses have not been elucidated. The increased knowledge of foodborne pathogen genetic and physiological mechanisms for adaptation to selected environmental stresses will help food regulators in making science-based decisions and help in the development of more effective intervention technologies to improve food safety and shelf-life.

Specific project activities include the screening of foodborne bacteria for novel virulence factors by applying standard molecular methods such as polymerase chain reaction, evaluation of gene expression under various conditions by applying omics technologies (e.g., genomics, transcriptomics), validation of gene expression using quantitative reverse transcriptase polymerase chain reaction, and bioinformatic analyses for the identification of molecular mechanisms conferring growth/survival advantages to bacteria in food as well as identify potential biomarkers of persistence. Further activities include troubleshooting and optimizing assay designs to evaluate physiological responses to stress.

Learning Objectives: During the appointment, you will;

- Learn about food safety research focused on bacterial contamination and foodborne pathogenic bacteria.
- Gain knowledge of how foodborne pathogens respond and adapt to environmental and food-related stresses encountered during production, processing, and host infection.
- Develop experience studying bacterial stress response, virulence, survival mechanisms, and persistence in food systems.
- Apply molecular biology techniques such as polymerase chain reaction (PCR) to screen foodborne bacteria for novel virulence factors.
- Learn to evaluate gene expression under different environmental conditions using omics technologies including genomics and transcriptomics.
- Gain hands-on experience validating gene expression data using quantitative reverse transcriptase PCR (qRT-PCR).
- Develop bioinformatics skills to identify molecular mechanisms associated with bacterial growth, survival, and persistence in food environments.
- Gain experience in troubleshooting and optimizing experimental assay designs to study bacterial physiological responses to stress.
- Gain interdisciplinary training in microbiology, molecular biology, genomics, bioinformatics, and food safety research.

Mentor(s): The mentor for this opportunity is

Manita Guragain (manita.guragain@usda.gov). If you have questions about the nature of the research, please contact the mentor(s).

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Anticipated Appointment Start Date: **September 28, 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.

Participant Stipend: The participant will receive a monthly stipend commensurate with educational level and experience.

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.Northeast@orau.org and include the reference code for this opportunity.

Qualifications The qualified candidate should have received a doctoral degree in one of the relevant fields. Degree must have been received within the past five years.

Stipend \$6,857.00 Monthly

Point of Contact [Janeen](#)

- Eligibility Requirements**
- **Citizenship:** U.S. Citizen Only
 - **Degree:** Doctoral Degree received within the last 60 month(s).
 - **Discipline(s):**
 - **Life Health and Medical Sciences** ([11](#) )
 - **Veteran Status:** Veterans Preference, degree received within the last 120 month(s).