Opportunity Title: USDA-ARS Fellowship in Plant Pathology
Opportunity Reference Code: USDA-ARS-NE-2024-0026

Organization U.S. Department of Agriculture (USDA)

Reference Code USDA-ARS-NE-2024-0026

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
- Two educational or professional recommendations

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

Application Deadline 4/12/2024 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), within the Soybean Genomics & Improvement Laboratory (SGIL) in Beltsville, Maryland, but location can vary. The Beltsville Agricultural Research Center (BARC) is located on 6,615 acres in Beltsville, MD and is the largest location in the USDA ARS Northeast Area, comprising 17 research labs.

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.

The mission of the Soybean Genomics & Improvement Laboratory (SGIL) is to improve soybean and common bean to provide sustainable solutions for consumers in America and around the world, including 1) developing molecular markers and genetic maps to define genes controlling seed quality, disease resistance, abiotic stress tolerance, and productivity; 2) discovering and elucidating the function of genes and molecular mechanisms governing traits such as disease resistance and seed quality; 3) maintaining the National Rhizobium Germplasm Resource Collection to support symbiotic nitrogen fixation applications and research; and 4) providing diagnostic and research support to collaborating scientists.

Research Project: This fellowship is part of the project "Host Resistance for Managing Pathogens of Common Bean Disease". The participant will be

assigned to the project objective of helping to:

- Identify novel disease resistance genes and use them through introgression into existing varieties, to expand the genetic base of common bean.
- Conduct research to help develop and release common bean germplasm and/or cultivars with durable resistance to hyper-virulent pathogens, with emphasis on anthracnose and rust diseases.
- Conduct research using next-generation sequencing to characterize the diversity of common bean pathogens that regularly produce new virulent strains.

The overall goal of the project is to broaden the genetic base of common bean and concurrently decrease the vulnerability of this crop to highly variable pathogens that cause economically damaging diseases, including rust, anthracnose and angular leaf spot in common bean. The successful participant is expected to produce quality research to be published in peer-reviewed journals relevant to the field as well as communicate with the common bean research community.

Learning Objectives: In this project, the participant will have opportunities to learn how to:

- Culture and screen pathogens, conduct omics-based data generation and data mining in common bean diseases, and investigate soybean/common bean-rhizobium interactions.
- Perform research related to next-generation sequencing, molecular marker (SNPs, SSRs, indels) development, phenotyping, genotyping and quantitative trait loci (QTL) mapping of traits controlling disease resistance and gene expression analysis in common bean.
- Develop genetic transformation and genome editing-based approaches to define genes in common bean, and explore pathogen transmission pathways and common bean-pathogen interactions.
- Maintain, evaluate and utilize common bean genetic resources.

Mentor(s): The mentors for this opportunity are Ruifeng He (ruifeng.he@usda.gov) and Qijian Song (Qijian.song@usda.gov). If you have questions about the nature of the research, please contact the mentor(s).

Anticipated Appointment Start Date: April 1, 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 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, Lawful Permanent Residents (LPR), and foreign nationals. Non-U.S. citizen applicants should refer to the Guidelines for Non-U.S. Citizens Details page of the program website for information about the valid immigration statuses that are acceptable for program participation.

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 bachelor's, master's, or PhD in the one of the relevant fields. Degree must have been received within the past five years and experience in a research lab after receiving a PhD degree is highly desired.

Preferred skills:

- A Ph.D. in Plant Pathology, Genetics, Genomics, Bioinformatics or a related discipline with intensive training/experience in plant pathogens
- Knowledge and experience in Genetics, Molecular Biology and Plant Pathology.
- Ability to plan and execute research, including designing and optimizing protocols, conducting laboratory, greenhouse and field experiments, troubleshooting, collecting and analyzing data, interpreting results, and writing scientific reports for publication
- Experience working with genetics and genomic data, plant disease resistance and common bean breeding
- Strong oral and written communication skills

Eligibility Requirements

- **Degree:** Bachelor's Degree, Master's Degree, or Doctoral Degree received within the last 60 month(s).
- **Discipline(s):**
  - **Life Health and Medical Sciences** (14 👁)
- **Veteran Status:** Veterans Preference, degree received within the last 120 month(s).