Opportunity Title: USDA-ARS Postdoctoral Fellowship in Molecular Plant Pathology
Opportunity Reference Code: USDA-ARS-P-2023-0135

Organization U.S. Department of Agriculture (USDA)

Reference Code USDA-ARS-P-2023-0135

How to Apply ***Connect with ORISE...on the GO!*** Download the new ORISE GO mobile app in the Apple 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
- 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. All transcripts must be in English or include an official English translation. 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 7/7/2023 3:00:00 PM Eastern Time Zone

Description ***Applications may be reviewed on a rolling-basis and this posting could close before the deadline.**

ARS Office/Lab and Location: A postdoctoral research opportunity is available with the U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS) located in Fargo, North Dakota.

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 Edward. T. Schafer Agricultural Research Center in Fargo, ND is one of the largest USDA facilities in the Plains Area of the US with research ranging from animal toxicology, protecting, rearing, storing and transporting bee species for pollination of valuable crops, to developing and improving numerous agronomic crops including corn, wheat, barley, sunflower and potato. Scientists at the ETSARC conduct research in many scientific fields including, but not limited to, conventional and molecular breeding, biotechnology, molecular genetics, genomics and proteomics, plant pathology, entomology, and plant physiology. The USDA-ARS Sunflower and Plant Biology Research Unit is currently working to develop a diverse sunflower germplasm base that will improve oil quality and reduce the use of chemicals for disease and insect control. Major objectives of our research program are to improve genetic resistance of sunflower to prevalent diseases, to identify genetic loci and molecular mechanisms associated with disease resistance, and to characterize the genetic and pathogenic diversity of relevant pathogen populations.

Research Project: The participant will contribute to a research project focused on molecular and

Opportunity Title: USDA-ARS Postdoctoral Fellowship in Molecular Plant Pathology
Opportunity Reference Code: USDA-ARS-P-2023-0135

physiological understanding of the interaction between cultivated sunflower and the fungal plant pathogen Sclerotinia sclerotiorum. This fungus causes disease and economic loss on many important crop plants and can cause several distinct diseases on cultivated sunflower. Specifically, the participant will study the role of tolerance to the toxic metabolite oxalic acid, produced by S. sclerotiorum, in sunflower resistance to Sclerotinia basal stalk rot. The research project will involve evaluation of oxalic acid accumulation in sunflower lines exhibiting tolerance or sensitivity to the toxin, physiological characterization of the mechanisms of oxalic acid tolerance, and whole-genome transcriptional profiling of sunflower responses to oxalic acid in tolerant and sensitive lines. This research will make an important contribution to a broader effort to develop sunflower germplasm resources with improved resistance to Sclerotinia diseases.

Learning Objectives: The participant will receive training, mentoring, and experience in the biology of plant-microbe interactions, with specific emphasis on plant disease caused by a necrotrophic fungus and quantitative disease resistance. The participant will gain experience working in a non-model crop disease pathosystem. Additionally, the participant will gain experience in transcriptional profiling using next-generation sequencing, including bioinformatic and computational analyses of large datasets. The participant will have career development opportunities such as presenting research results at national and international meetings. The participant will also receive mentoring in grantsmanship, writing and submission of research publications, and presenting research to other scientists and stakeholder groups.

Mentor(s): The mentor for this opportunity is William Underwood (William.underwood@usda.gov). If you have questions about the nature of the research please contact the mentor(s).

Anticipated Appointment Start Date: 2023. 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.Plains@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 one of

Opportunity Title: USDA-ARS Postdoctoral Fellowship in Molecular Plant Pathology
Opportunity Reference Code: USDA-ARS-P-2023-0135

the relevant fields. Degree must have been received within the past five years.

Preferred skills:

- Background in plant molecular biology
- Experience working with plant diseases and phytopathogenic microorganisms
- Experience with general molecular biology techniques such as nucleic acid isolation, PCR, and RT-qPCR
- Experience with transcriptomics, next-generation sequencing, and related bioinformatics analyses and software tools

Eligibility Requirements

- **Degree:** Doctoral Degree received within the last 60 months or currently pursuing.
- **Discipline(s):**
  - **Life Health and Medical Sciences** (15 👁)
- **Veteran Status:** Veterans Preference, degree received within the last 120 month(s).