Opportunity Title: USDA-ARS Post-doctorate Fellowship in Bioinformatics, Plant Genetic Diversity, and Crop Evolution
Opportunity Reference Code: USDA-ARS-NE-2023-0471

Organization U.S. Department of Agriculture (USDA)

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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 1/19/2024 3:00:00 PM Eastern Time Zone

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

ARS Office/Lab and Location: A postdoctoral research opportunity is currently available with the U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS), within the Sustainable Perennial Crops Lab in Beltsville, Maryland.

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 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 Sustainable Perennial Crops Lab (SPCL) conducts research on tropical perennial crops of significance to national and global economies with the goals of improving crop yields with reduced inputs, reducing the impact of crop diseases, and preserving and optimizing the use of crop genetic diversity, thus providing U.S. consumers and industries with safe and stable supplies of these commodities.

Research Project: This appointment is part of the project "Molecular Characterization of Genetic Resources for Coffee, Cacao and Other Tropical Perennial Crops Economically important to the United States". The participant will be assigned to the project objective of helping to develop and apply genomic tools for improving accuracy and effectiveness in managing genetic resources of tropical perennial crops, such as cacao, coffee, tea, Annona, sapodilla, Garcinia and sapote. This project offers a

unique challenge to help assess the evolution and phylogenetic relationships of tea (Camellia sinensis) genetic resources from around the world, using the approach of whole genome resequencing (WGR) and SeqSNP genotyping.

Under the guidance of a mentor, the participant will research the project objectives including:

- To examine the genetic structure and demographic history, and investigate factors shaping the intra-specific divergence of Camellia sinensis
- To assess adaptive genetic variation in natural tea populations using candidate genes
- To help develop genome-wide SNP markers capturing allelic variation in both Chinese tea and Assam tea

The appointment will involve close collaboration with plant geneticists and the bioinformatics team at ARS and the University of Nebraska - Lincoln. The successful candidate is expected to produce quality research to be published in reputable peer-reviewed journals relevant to the field as well as communicate with research networks within the research community.

Learning Objectives: As a result of this training, the participant will gain knowledge and experience in:

- Utilizing and adapting existing bioinformatics tools/pipelines for SNP marker development, analysis of third generation sequencing results, population structure analysis, landscape genomics, and more
- Learning to develop of new genomic and molecular tools/resources for conservation of perennial crop genetic resources
- Use of high-performance computational resources through USDA-ARS SCINet
- Maintaining, evaluating and utilizing tropical plant genetic resources

Mentor(s): The mentors for this opportunity are Dr. Dapeng Zhang (Dapeng.Zhang@usda.gov) and Dr. Stephen Cohen (Stephen.Cohen@usda.gov). If you have questions about the nature of the research, please contact the mentor(s).

Anticipated Appointment Start Date: Early 2024. Start date is flexible and will depend on a variety of factors.

Appointment Length: The appointment will initially be for one year with the potential to extend the appointment contingent upon 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 (ranging from $78,000 to $85,000/year). **The stipend for this opportunity includes a $602 per month health insurance supplement and up to $2,000 relocation reimbursement, if applicable.**

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Citizenship Requirements: This opportunity is available to U.S. citizens, Lawful Permanent Residents (LPR), and foreign nationals that have been in the USA for three consecutive years prior to this appointment. 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 be currently pursuing or have received a doctoral degree in the one of the relevant fields. Degree must have been received within the past five years and post-doctorate experience is highly desired.

Preferred skills:

- A Ph.D. in Genomics, Transcriptomics, Bioinformatics or a related discipline with intensive training/experience in bioinformatics or computational biology
- Knowledge and experience in molecular genetics and population genetics.
- Prior experience in large-scale genomic data analysis
- Skills in the application of computational methods to assess genomic data. Familiarity with command-line tools and/or coding languages such as R, Python or others is highly appreciated.
- A proven track record in this area reflected in recent or pending publications
- Ability to effectively communicate scientific findings to the research community.

Eligibility Requirements

- **Degree:** Doctoral Degree received within the last 60 months or currently pursuing.
- **Overall GPA:** 3.20
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (2 👁)
  - **Computer, Information, and Data Sciences** (2 👁)
  - **Engineering** (1 👁)
  - **Environmental and Marine Sciences** (2 👁)

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- **Life Health and Medical Sciences** (13 👁)

Affirmation Have you lived in the United States for at least 36 out of the past 60 months?