

Opportunity Title: USDA-ARS Postdoctoral Fellowship in Citrus Bioinformatics
Opportunity Reference Code: USDA-ARS-2022-0103

Organization U.S. Department of Agriculture (USDA)

Reference Code USDA-ARS-2022-0103

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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 4/29/2022 3:00:00 PM Eastern Time Zone

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

ARS Office/Lab and Location: A postdoctoral research opportunity is currently available with the U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS), Appalachian Fruit Research Station located in Kearneysville, West Virginia. The selected participant will be part of the Genetic Improvement of Fruit Crops Unit at the USDA-ARS Appalachian Fruit Research Station. Funding for the project is provided through a USDA Specialty Crops Research Grant to our cooperator at the University of California, Riverside.

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 the agency is to provide global leadership in agricultural discoveries through scientific excellence.

Research Project: The goals of the project are to identify Huanglongbing (HLB) resistance genes in wild citrus species. HLB is caused by *Candidatus Liberibacter* and has destroyed many citrus industries world-wide. Development of resistant cultivars will provide long-term solutions and will be essential for a sustainable citrus industry. True resistance to HLB is present in certain citrus relative genera that are sexually compatible with citrus. Through traditional breeding, we have generated populations of novel hybrids between commercial varieties and HLB resistant Australian species. Under the guidance of a mentor, the participant will utilize integrated genomics approaches to discover HLB resistance loci and identify candidate genes. Specific activities will include: 1) annotate newly generated reference sequences of three known HLB-resistant citrus relative species, 2) characterize genetic differences between resistant and susceptible hybrids using



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low-depth whole genome sequencing of 200 hybrid lines, 3) conduct sequence-based bulked segregant analysis, and 4) compare transcriptomes of selected individuals. Once candidate loci and genes are identified, the participant will conduct preliminary validation of the selected markers and genes using PCR-based molecular markers and gene expression assays in resistant vs. susceptible hybrids.

Learning Objectives: The learning objectives of the appointment include: Genome annotation and use of comparative genomics tools Bulk-segregant mapping and identification of linked genetic loci Transcriptome and gene network analyses. This project will offer significant professional development for the participant with respect to the development of new skills and opportunities to present high profile research at international conferences. The participant will also have the opportunity to interact with a network of preeminent researchers across the US who are coordinating efforts to combat this serious disease of Citrus that is threatening the entire industry. The participant will be expected to attend the annual Plant and Animal Plant Genome Conference held each January in San Diego, California. Funding for travel will be provided.

Mentor(s): The mentor for this opportunity is Chris Dardick (chris.dardick@usda.gov). If you have questions about the nature of the research please contact the mentor(s).

Anticipated Appointment Start Date: 2022. 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 an additional year 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 USDA-ARS@ornl.gov and include the reference code for this opportunity.

Qualifications The qualified candidate should have received a doctoral degree in one of the relevant fields.

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**Eligibility
Requirements**

- **Citizenship:** U.S. Citizen Only
- **Degree:** Doctoral Degree.
- **Discipline(s):**
 - **Life Health and Medical Sciences** (7 )