

Opportunity Title: USDA-ARS Postdoctoral Fellowship on the Genetics of Malting Quality in Barley

Opportunity Reference Code: USDA-ARS-2022-0050

Organization U.S. Department of Agriculture (USDA)

Reference Code USDA-ARS-2022-0050

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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.

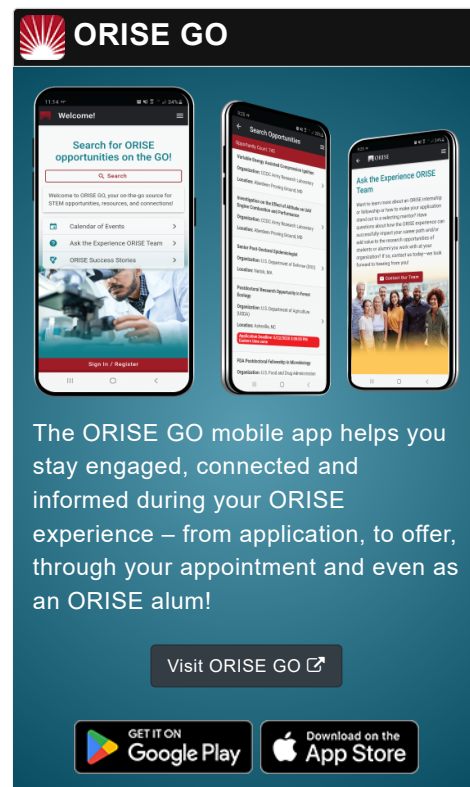
Application Deadline 1/25/2022 3:00:00 PM Eastern Time Zone

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

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

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 Cereal Crops Research Unit is to 1) conduct basic research to identify and understand the biological processes affecting the growth, development and properties of barley and oat, 2) evaluate these findings for potential applications to improved cereal quality through germplasm development or altered production practices, and 3) to provide support for barley applied research programs within ARS and at State Agricultural Experiment Stations.



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Research Project: The project examines the relationship between gene expression and malting quality. Project activities include experimental design, sample collection, data acquisition, and data analyses. Participant will focus on elucidating the expression of essential genes associated with malting quality traits. Participant will utilize state-of-the-art molecular techniques to monitor gene expression in conjunction with phenotyping for malting quality and associated enzyme assays. Participants will also capitalize on USDA's computer resource that includes access to high performance computer clusters, cloud computing, and indispensable in-depth training.

Learning Objectives: Participant will build upon knowledge learned during their graduate training and increase their skills in experimental design, data collection, data analyses, and oral and written presentations. The participant will learn how specific gene(s) and their expression contributes to quality traits. Furthermore, the participant is strongly encouraged to learn machine learning and artificial intelligence for identifying genes essential to achieve a desired malt quality score.

Mentor(s): The mentor for this opportunity is Marcus Vinje (marcus.vinje@usda.gov). If you have questions about the nature of the research, please contact the mentor(s).

Anticipated Appointment Start Date: Winter/Spring 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 upon recommendation of ARS and is contingent on the availability of funds.

Level of Participation: The appointment is full-time.

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

Citizenship Requirements: This opportunity is available to U.S. citizens and Lawful Permanent Residents (LPR) 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 be currently pursuing or have

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received a doctoral degree in one of the relevant fields.

Preferred skills:

- Previous experience using common molecular biology techniques (e.g. DNA/RNA extraction, cloning, DNA sequencing, PCR, RT-qPCR)
- Previous experience using common protein techniques (e.g. Enzyme assays, Western Blot)
- Previous experience with statistics and scientific writing
- Bioinformatics, especially as it relates to RNAseq analysis
- Artificial intelligence and machine learning

**Eligibility
Requirements**

- **Citizenship:** LPR or U.S. Citizen
- **Degree:** Doctoral Degree.
- **Discipline(s):**
 - **Computer, Information, and Data Sciences** (17 👁)
 - **Life Health and Medical Sciences** (15 👁)