Opportunity Title: Postdoctoral Research Opportunity in the Genetics of Host Resistance in Barley & Oat
Opportunity Reference Code: USDA-ARS-2019-0160

Organization U.S. Department of Agriculture (USDA)

Reference Code USDA-ARS-2019-0160

How to Apply

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.

If you have questions, send an email to USDA-ARS@orau.org. Please include the reference code for this opportunity in your email.

Application Deadline 11/7/2019 3:00:00 PM Eastern Time Zone

Description

***Applications will be reviewed on a rolling-basis.**

A postdoctoral research opportunity is available with the U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS) Pacific West Area located in Aberdeen, Idaho.

Crown rust is the most economically significant disease of oat, regularly causing yield losses of 5% in the midwestern U.S., with yield losses exceeding 50% observed in epidemic years. Fusarium head blight is a significant disease of barley that has caused considerable losses to producers through yield loss and contamination of grain with mycotoxins, primarily deoxynivanol (DON). This research project will employ molecular and statistical genetic methods to characterize the genetic architecture and/or molecular basis of oat resistance to crown rust and barley resistance to Fusarium head blight. As part of these efforts, molecular markers for host resistance QTL will be identified and validated for use in marker-assisted selection.

Under the guidance of a mentor, the selected participant will use existing bi-parental populations, association mapping panels, and individual lines with contrasting phenotypes to explore the genetics of host resistance to crown rust and Fusarium head blight, and the relationship between disease reaction and DON accumulation in the grain. The participant will carry out phenotyping, genotyping and statistical analysis aimed at associating genetic variation with disease response. Molecular investigations may involve PCR, qPCR, next-generation sequencing, and related techniques. Results generated may suggest opportunities to develop and evaluate efficient methods of selection which may be based on molecular genetic, microbiological, or statistical methods.

This project will provide the participant with training in applied plant breeding,

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management and analysis of large datasets, methods of classical and population genetic investigation, molecular genetics, and the study of host resistance.

Anticipated Appointment Start Date: November 12, 2019

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. The initial appointment is for one year, but may be renewed upon recommendation of ARS and is contingent on the availability of funds. The participant will receive a monthly stipend of $4,200, a health insurance allowance of $1,337 and a relocation allowance of $2,500. Proof of health insurance is required for participation in this program. The appointment is full-time at ARS in the Aberdeen, Idaho, area. Participants do not become employees of USDA, ARS, DOE or the program administrator, and there are no employment-related benefits.

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.

For more information about the ARS Research Participation Program, please visit the **Program Website**.

Qualifications

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

Preferred Skills:

- Experience with plant pathology methods such as maintenance of fungal cultures and plant inoculation
- Experience with statistical genetic analysis as applied to plant pathology
- Experience with growing and maintaining plants in the greenhouse and growth chamber
- Basic molecular genetics laboratory skills including PCR, DNA extraction, etc.
- Good verbal and written communication skills

Eligibility Requirements

- **Degree:** Doctoral Degree.
- **Discipline(s):**
  - **Life Health and Medical Sciences** (6 👁)
  - **Mathematics and Statistics** (1 👁)