

Opportunity Title: Postdoctoral Research Opportunity in Molecular Biology

Opportunity Reference Code: USDA-ARS-2020-0080

Organization U.S. Department of Agriculture (USDA)

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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 5/6/2020 3:00:00 PM Eastern Time Zone

Description

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

A research opportunity is currently available with the U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS), U.S. Arid-Land Agricultural Research Center (ALARC), Pest Management and Biological Control Research Unit located in Maricopa, Arizona.

The mission of the Research Unit is to develop unique and improved biological, behavioral and genetic based methods to reduce losses by insects affecting cotton and other crops in arid land production areas of the U.S.

Under the guidance of a mentor, the selected participant will actively contribute to the targeted functional analysis of gene candidates in several insect pest species of cotton using contemporary gene deletion approaches (CRISPR, RNAi, etc.). Although many gene targets have been elucidated via various molecular analyses, the opportunity also exists to identify additional targets using comparative genomic and RNA-seq approaches by means of existing sequencing data. Hence, knowledge of basic bioinformatic programs and analysis would be helpful, but not required. The participant will actively apply transformation and reverse genetics techniques as well as standard molecular genetic principles to understand the molecular and physiological factors that control insect sex determination, genes involved in insecticide resistance to *Bacillus thuringiensis* (Bt) toxins/crops, and the potential application of arthropod gene-drive systems to agricultural pests.

Opportunities to learn about various applications of insect pest management in cotton and other cropping systems will be obtained during the appointment and during site visits. This information will be used to direct the lab studies. The participant will be able to participate in multiple opportunities to improve public speaking, scientific manuscript writing, and critical evaluation of scientific literature.

Under the guidance of a mentor, the participant will gain practical laboratory experience in:

- gene editing of non-model insects
- elucidating molecular mechanisms/pathways driving biology with opportunities for comparative analyses
- developing/refining PCR and other molecular methods
- applying modern molecular methods to entomology
- relating computer-based bioinformatics data to biological questions
- interacting with an interdisciplinary research team with expertise in molecular biology, genetics, physiology, endocrinology, and biochemistry
- preparing manuscripts and other documentation
- public speaking/presentations
- grant writing

During the appointment, there will be occasional travel to professional meetings, to visit stakeholders, and/or hands-on training at surrounding federal/university locations and may include stateside and foreign venues.

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Anticipated Appointment Start Date: June 22, 2020

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 two years, but may be renewed upon recommendation of ARS and is contingent on the availability of funds. The participant will receive a monthly stipend commensurate with educational level and experience. **The annual stipend rate will be \$60,000 and a health insurance allowance will also be provided. A relocation allowance is negotiable. Travel funds to attend national and/or international scientific meetings are available.** Proof of health insurance is required for participation in this program. Health insurance can be obtained through ORISE. The appointment is full-time at ARS in Maricopa, Arizona (located within the Phoenix metro 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 and Lawful Permanent Residents (LPR) only.

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:

- Timely observations and keen attention to detail
- Solid wet lab skills, including experience with gene editing (CRISPR), RNA interference (RNAi), DNA/RNA manipulation and cloning, real-time quantitative PCR, microinjection and/or other delivery techniques, and insect bioassays/handling
- Excellent written and oral communication skills, as evidenced by presentations at professional society meetings
- Experience with bioinformatics

Eligibility Requirements

- **Citizenship:** LPR or U.S. Citizen
- **Degree:** Doctoral Degree.
- **Discipline(s):**
 - **Life Health and Medical Sciences** (12 )