Opportunity Title: Research Opportunity in Molecular Biology
Opportunity Reference Code: USDA-ARS-2019-0097

Organization U.S. Department of Agriculture (USDA)

Reference Code USDA-ARS-2019-0097

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 11/29/2019 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), Arid-Land Agricultural Research Center, Pest Management and Biological Control Research Unit located in Maricopa, Arizona.

The mission of this research unit is to develop unique and improved biological, behavioral, cultural and genetic based methods to reduce losses by insects and mites affecting crops in arid land production areas of the U.S. The goals are economically, socially, and environmentally acceptable pest population suppression technologies based on the use of behavioral chemicals, genetics, cultural practices, biological control, sampling and decision aids, modeling and population dynamics of pests and their natural enemies. Researchers in the unit are actively engaged in the application of functional genomics approaches to elucidate key genes driving critical biological and physiological functions in a non-model agricultural pest. Using multiple transcriptomic resources developed by the unit, efforts are underway to link gene sequence with biological function. Methods currently being used and under development include: traditional molecular cloning techniques, PCR-based and sequencing-based profiling of differential transcript abundances across tissues and conditions, in vivo dsRNA-mediated RNA interference determining gene function, gene-editing techniques, and utilization of recombinant proteins in confocal microscopy and/or plate reader-based cell assays. The selected participant will collaborate with and learn from a multi-disciplinary team of researchers and support staff to holistically examine gene function from sequence identification and cloning to expression profiling, to the development and implementation of gene silencing/editing methods and the subsequent assessment of silencing effects on biology/physiology. The participant will be provided authorship on manuscripts resulting from their research efforts as well as opportunities to present findings at

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relevant venues.

Learning opportunities associated with this project include:

- adapting molecular methods to non-model organisms
- developing dsRNA delivery methods
- elucidating molecular mechanisms/pathways driving biology with opportunities for comparative analyses
- maintaining and utilizing cultured insect cell lines for assessing gene function
- developing/refining PCR methods
- application of modern molecular methods to entomology
- applying computer-based bioinformatics methods to a biological question

Anticipated Appointment Start Date: Fall 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 six months, 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. 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 the Maricopa, Arizona, 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 be currently pursuing or have received a bachelor's or master's degree in one of the relevant fields.

Preferred skills:

- Attention to detail and ability to multi-task
- Desire to collaborate with team and enthusiasm for learning
- General molecular cloning techniques
- Entomology and/or molecular entomology
- Nano/micro-injection methods
- RNAi
- Insect cell culture
- Bioinformatics

Eligibility Requirements

- **Degree:** Bachelor's Degree or Master's Degree.
- **Discipline(s):**
  - **Life Health and Medical Sciences** (5 👁)