Opportunity Title: USDA-ARS Research Opportunity in Functional Genomics Applications to Insect Physiology
Opportunity Reference Code: USDA-ARS-2022-0378

Organization U.S. Department of Agriculture (USDA)

Reference Code USDA-ARS-2022-0378

How to Apply ***Connect with ORISE...on the GO!*** Download the new ORISE GO mobile app in the Apple App Store or Google Play Store to help you stay engaged, connected, and informed during your ORISE experience and beyond!

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 2/28/2023 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 currently available with the U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS), Pest Management and Biological Control Research Unit located in Maricopa, Arizona.

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: This research project will use functional genomics approaches to gain insights into the pathways that regulate development and behavior in non-model insect pests. Building on previously developed transcriptomic and genomic datasets, targets of interest will be identified based on homology with genes characterized in other insects. RNAi and/or CRISPR approaches will be combined with physiological and behavioral assays to assess the in vivo functionality of genes of interest. The appointment affords the selected fellow opportunities to contribute to all phases of the project including target identification and functional characterization as well as assay development, and manuscript preparation.

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

- Elucidating molecular mechanisms/pathways driving biology in insect pests using RT-PCR/qRT-PCR, gene cloning, RNAi, and CRISPR
- Using GC-MS and HPLC to illuminate the roles of insect endocrine regulators

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- Expanding skills and practical knowledge in experimental design and data analysis
- Interacting with an interdisciplinary research team with expertise in molecular biology, physiology, endocrinology, and biochemistry
- Manuscript and presentation preparation

Mentor(s): The mentors for this opportunity are Joe Hull (joe.hull@usda.gov) and Colin Brent (colin.brent@usda.gov). If you have questions about the nature of the research, please contact the mentor(s).

Anticipated Appointment Start Date: Spring 2023. Start date is flexible and will depend on a variety of factors.

Appointment Length: The appointment will initially be for two years, 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 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).

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 ORISE.ARS.PacificWest@orau.org and include the reference code for this opportunity.

Qualifications

The qualified candidate should be currently pursuing or have received a doctoral degree in one of the relevant fields (e.g., biochemistry, Molecular Biology, Entomology). Degree must have been received within the past five years.

Preferred Skills/Experience:

- Completed upper division (300-400 level) course work totaling >20 hours in life science classes such as Biochemistry, Physiology, Endocrinology, Entomology, and/or Molecular Biology
- Familiarity with general molecular techniques such as PCR, cDNA synthesis, and molecular cloning
- Attention to detail
- Ability to multi-task
- Desire to work collaboratively

Eligibility Requirements

- **Citizenship:** LPR or U.S. Citizen
- **Degree:** Doctoral Degree received within the last 60 months or currently

pursuing.

- **Overall GPA:** 3.30
- **Discipline(s):**
  - **Life Health and Medical Sciences** (13 👁)
- **Veteran Status:** Veterans Preference, degree received within the last 120 month(s).