Opportunity Title: USDA Fellowship in Foreign Animal Disease Vaccine and Biotherapeutic Development
Opportunity Reference Code: USDA-ARS-P-2024-0006

Organization U.S. Department of Agriculture (USDA)

Reference Code USDA-ARS-P-2024-0006

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
- 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. 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 3/1/2024 11:59:00 PM Eastern Time Zone

Description ***Applications are reviewed on a rolling-basis.**

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

PIADC is the only U.S. laboratory facility performing research, development and diagnosis of foreign animal diseases of highest threat to the U.S. This critical national asset is located off the northeast coast of Long Island, NY, and accessible by government-provided ferry from Orient Point, NY, and Old Saybrook, CT. Research at PIADC is performed on animal diseases that threaten the nation's animal industries and exports. One of the missions of the Foreign Animal Disease Research Unit (FADRU) is to investigate foreign animal diseases (FADs) in their endemic settings to help mitigate the risks of catastrophic economic losses caused by these pathogens in the event of accidental or deliberate introduction to the United States.

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.

Research Project: This opportunity will involve the evaluation of innate

and adaptive immunity during foot-and-mouth disease (FMD) infection and the immune response after different types of vaccination and/or immuno-modulatory treatments such as interferons (IFN). The candidate will be directly involved in running animal studies in the natural host (cattle, pigs) and *in vitro* models to elucidate the importance of the different aspects of the immune response during infection and the mechanisms involved in protection during vaccination or treatment. The candidate will also implement diagnostics tools to differentiate vaccinated from infected animals.

Learning Objectives: Under the guidance of a mentor, the participant may be involved in the following activities:

- Study design for pathogenesis or vaccination/biotherapeutic experiments involving exotic viral diseases of livestock
- Execution of animal experiments involving exotic viral diseases of livestock
- Clinical examinations of livestock (pigs and/or cattle)
- Sample collection from living livestock
- Postmortem examination, dissection, and sample collection
- Tissue culture and virus isolation
- Flow cytometry/sorting
- ELISA, ELISpot, Multiplex ELISA
- Immunofluorescence
- Polymerase chain reaction
- Cellular metabolism/respiration rate assays (Agilent Seahorse)
- Single cell RNA sequencing
- Data analysis
- Drafting manuscripts reporting experimental results

Being stationed at PIADC offers prospective candidates with the opportunity of learning to collaborate with select agents in livestock species and managing select agent inventories. Candidates will have the opportunity to participate in national and international meetings, workshops and training courses for the advancement of their scientific careers in foreign animal diseases and emerging infectious animal diseases.

Mentor(s): The mentor for this opportunity is Sarah Attreed (sarah.attreed@usda.gov). If you have questions about the nature of the research, please contact the mentor(s).

Anticipated Appointment Start Date: February 2024. 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 will receive a monthly stipend commensurate with educational level and experience.

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Citizenship Requirements: 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.

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.Plains@orau.org and include the reference code for this opportunity.

Qualifications

The qualified candidate should be currently pursuing or have received a bachelor's, master's, or doctoral degree in the one of the relevant fields. Degree must have been received within the past five years or be currently pursuing.

Preferred skills:

- Experience in handling lab animals and/or livestock (swine, cattle, etc.)
- Knowledge of animal infectious diseases
- Knowledge of vaccine/biotherapeutics (potency/efficacy studies) as means to control animal diseases
- Experience in evaluation of immune responses (flow cytometry, sorting of cells, immunofluorescence, antibody detection and characterization of antibodies [neutralizing antibodies, total antibodies, antibody isotyping, etc.]
- Detection of cytokines by ELISA, ELISPOT and/or multiplex ELISA, qPCR, etc.)
- Tissue culture experience and comfort with sterile technique
- Some experience in molecular biology techniques including cloning, cell culture, PCR, sequencing, single cell RNA sequencing, western blotting, microscopy, etc.
- Knowledge of Microsoft Office, data processing and basic statistics
- Candidates must have or be eligible to obtain a high security clearance

Eligibility Requirements

- **Degree:** Bachelor's Degree, Master's Degree, or Doctoral Degree received within the last 60 months or currently pursuing.
- **Discipline(s):**
  - **Life Health and Medical Sciences** (51 👁)
- **Veteran Status:** Veterans Preference, degree received within the last 120 month(s).

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