

Opportunity Title: USDA-ARS Fellowship Research Opportunity in Microbiology, Immunology, and Veterinary Science

Opportunity Reference Code: USDA-ARS-MW-2024-0135

Organization U.S. Department of Agriculture (USDA)

Reference Code USDA-ARS-MW-2024-0135

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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.

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 Ames, Iowa.

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.

The National Animal Disease Center (NADC) is an ARS facility located in Ames, Iowa. NADC is tasked with conducting basic and applied research on endemic diseases of economic impact to US livestock and poultry farmers. The 523-acre campus encompasses both BSL-2 and -3 laboratories and containment facilities capable of housing large animals.

Research Project: This ORISE Fellowship supports the ARS project "Virulence Mechanisms, Microbiome Changes and Control Strategies for Priority Bacterial Infections in Swine". The participant will have the opportunity to be involved in basic and applied research investigating the pathogenesis of and intervention strategies for bacteria that cause disease in swine, such as *Glaesserella parasuis* and *Streptococcus suis*.

Learning Objectives: The appointee has the potential to gain experience with the following techniques:



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- Designing and executing animal studies to evaluate bacterial pathogenesis or intervention strategies
- Bacterial fitness assessments - attachment/invasion assays, phagocytosis assays, serum sensitivity assays, in vivo colonization assessments
- Bacterial manipulation - gene editing or knock outs
- Immune assessments - ELISAs, ELISpots, cytokine quantification
- Immunoproteomic techniques - 2-dimensional gel electrophoresis, immunoprecipitation, phage display libraries
- Genetic, transcriptomic, microbiome assessments - DNA isolation/sequencing and analysis, PCR, qPCR, RNA isolation/sequencing and analysis, 16S sequencing/analysis

Mentor(s): The mentor for this opportunity is Samantha Hau (samantha.hau@usda.gov). If you have questions about the nature of the research, please contact the mentor(s).

Anticipated Appointment Start Date: May 2024. 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, 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.Midwest@ornl.gov 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 anticipated

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to be received by 6/1/2024.

- Eligibility Requirements**
- **Degree:** Bachelor's Degree, Master's Degree, or Doctoral Degree received within the last 60 months or anticipated to be received by 6/1/2024 12:00:00 AM.
 - **Academic Level(s):** Graduate Students, Post-Bachelor's, Postdoctoral, Post-Master's, or Undergraduate Students.
 - **Discipline(s):**
 - **Life Health and Medical Sciences** ([20](#) )

Affirmation I affirm that:

I am a US Citizen, OR

I am a non-US Citizen currently living in the United States