

Opportunity Title: USDA-ARS Postdoctoral Fellowship in Infectious Diseases
Opportunity Reference Code: USDA-ARS-2021-0230

Organization U.S. Department of Agriculture (USDA)

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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. 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.

Application Deadline 10/25/2021 3:00:00 PM Eastern Time Zone

Description ***Applications may be 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), National Animal Disease Center 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.

Research Project: This research project encompass a broad multidisciplinary approach to both applied and basic research on the diagnosis, treatment, and host-pathogen interactions during infection of cattle with Johne's disease. Johne's disease is caused by Mycobacterium avium subsp paratuberculosis (MAP), an intracellular bacteria, and causes chronic enteritis in ruminants. A goal of the project is to characterize the impact of MAP infection on the phenotypes of antigen-presenting cells in intestinal tissues of infected cattle. Under the guidance of a mentor, the selected participant will obtain samples and use confocal microscopy to characterize co-localization of surface receptors and cytokines on dendritic cells and macrophages within tissues. Additional in vitro studies will assess the effects of MAP



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infection on autophagy and apoptosis within macrophages.

Learning Objectives: The research project will expose the participant to novel immunologic methods for characterizing macrophage function and cellular immunity, provide experience in confocal microscopy techniques, and include training in conducting procedures used in clinical experiments in large animals hosts (sampling, necropsy, assessment of disease progression).

The appointment will include training on techniques for analyzing immunologic responses of cattle to infection with *Mycobacterium avium* subsp. paratuberculosis, and clinical assessment and sampling of infected animals. Areas covered by the training may include cell culture, flow cytometry, immunologic assays, sequencing techniques, statistics, and/or computational biology analysis.

Mentor(s): The mentor for this opportunity is Steven Olsen (steven.olsen@usda.gov). If you have questions about the nature of the research please contact the mentor.

Anticipated Appointment Start Date: October 2021. 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.

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 USDA-ARS@orau.org and include the reference code for this opportunity.

Qualifications

The qualified candidate should have received a doctoral degree in one of the relevant fields.



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Preferred skills:

- Some experience with immunology and microbiology of infectious pathogens
- Skills in statistical analyses and animal husbandry
- Some level of clinical experience with large animal models such as cattle

**Eligibility
Requirements**

- **Degree:** Doctoral Degree.
- **Discipline(s):**
 - **Life Health and Medical Sciences** (7 )
 - **Mathematics and Statistics** (1 )