

**Opportunity Title:** USDA-ARS Postdoctoral Gut Microbial Research Fellowship  
**Opportunity Reference Code:** USDA-ARS-2020-0184

**Organization** U.S. Department of Agriculture (USDA)

**Reference Code** USDA-ARS-2020-0184

**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.

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**Application Deadline** 11/30/2020 3:00:00 PM Eastern Time Zone

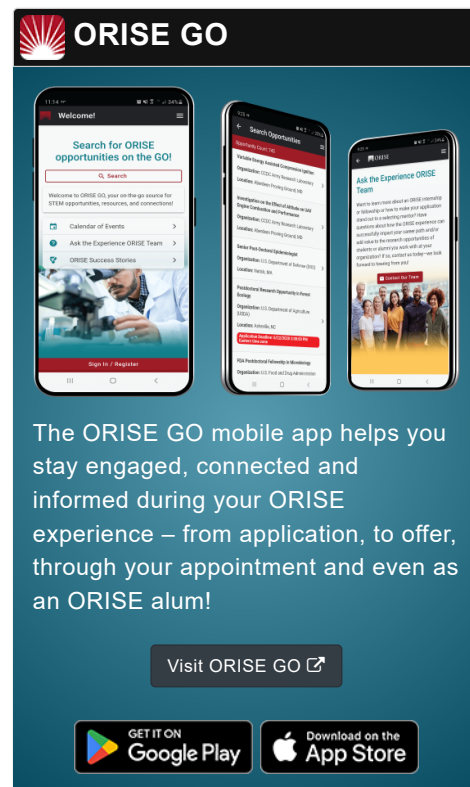
**Description** \*Applications are reviewed on a rolling-basis and this posting could close before the deadline.

**ARS Office/Lab and Location:** A research opportunity is currently available with the U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS) at the Eastern Regional Research Center, Dairy and Functional Food Research Unit (DFFRU) located in Wyndmoor, Pennsylvania.

**Research Project:** The DIET Microbiome group at the Eastern Regional Research Center has one immediately available opportunity in either of the following 2 research areas: 1) Impact of Diet on Brain Health or 2) Metabolic Reprogramming of Bacteria to Improve the Immune System.

The Research Unit "Dairy and Functional Foods" (DFFRU) conduct research in multi-directions, including the science and engineering matter of dairy products and byproducts, post-harvest preservation, functional foods and pre-/probiotics. The research group "Diet and Gut Microbiome" in the DFFRU has unique mission that is to provide an in-depth understanding on the interactions between diet, the human gut microbial community, and human health. This will be done using a combination of advanced in vitro microbial culturing technology, next-generation DNA sequencing and bioinformatics, metabolomics, chemical genomics, polymer chemistry, and molecular and cell biology.

The focus of the "Diet and Gut Microbiome" research group is to determine the effects of dairy and other foods or food components on the changes to the gut microbiota in terms of population dynamics and metabolome shifts on the both the small intestine and the large colon; and to investigate the changes to the microbial metabolomes, which may affect human cells by altering cellular morphology or

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signaling pathways, and to evaluate the health impact of these changes through the detection of health associated biomarkers. The selected participant will be involved in a part of the research with special assignment.

Under the guidance of a mentor, the participant will contribute to research evaluating the mechanism of how the gut microbial metabolite regulate the health and disease matter at molecular and genetic level. The participant will be assigned to either of the following research sub-projects: (1) Impact of Diet on Brain Health or (2) Metabolic Reprogramming of Bacteria to Improve the Immune System, depending on the professional education and expertise.

**Learning Objectives:** The participant will have unique opportunity to broaden their knowledge of molecular biology, food technology, and gut microbiology, and to develop and obtain hands-on experience using genetic reprogramming technology. The participant will learn to operate advanced equipment for the in vitro culturing anaerobic microbial community. This project will enhance the participant's capability to independently design, plan, and implement complicated experiments and give them expertise in the research direction.

**Mentor(s):** The mentor for this opportunity is LinShu Liu ([linshu.liu@usda.gov](mailto:linshu.liu@usda.gov)). If you have questions about the nature of the research please contact the mentor(s).

**Anticipated Appointment Start Date:** **October 1, 2020.** Start date is flexible and will depend on a variety of factors.

**Appointment Length:** The appointment(s) 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(s) will receive a monthly stipend commensurate with educational level and experience.

**Citizenship Requirements:** This opportunity is available to U.S. citizens.

**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](mailto: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.

Preferred skills:

- Training or experience with endocrine system and immune system, and cellular

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signaling pathways

- Knowledge of cytokines and/or hormones
- Knowledge of food technology and gut-brain bidirectional communication
- Training or experience with technologies of reprogramming bacterial metabolites

**Eligibility  
Requirements**

- **Citizenship:** U.S. Citizen Only
- **Degree:** Doctoral Degree.
- **Discipline(s):**
  - **Life Health and Medical Sciences** (7 )