

Opportunity Title: Postgraduate Research Opportunity in Milk Production

Efficiency and Nutrition Transcriptomics

Opportunity Reference Code: ARS-CWBURU-2018-555-0014-01

Organization U.S. Department of Agriculture (USDA)

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How to Apply 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 references

All documents must be in English or include an official English translation.

If you have questions, send an email to USDA-ARS@orau.org. Please include the reference code for this opportunity in your email.

Description A postgraduate research opportunity is available with the U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS), US Dairy Forage Research Center (USDFRC) in Madison, Wisconsin.

This project explores the molecular constituents associated with milk production efficiency in dairy cows using whole transcriptome sequencing methods.

The participant will evaluate the dairy cow transcriptomics associated with milk production efficiency and their interactions with the digestive tract microbiome using whole transcriptome sequencing methods. The specific transcriptome features being inspected include: the composition and diversity of rumen and digestive tract microbial metatranscriptome, host (dairy cattle) transcriptome changes in response to feed treatments, and the interaction between host genetics and its digestive tract microbial metatranscriptomics.

During this project, the participant will learn current methods in transcriptomics using Illumina or Oxford nanopore technologies. Additionally, the participant will gain first-hand experience in studying the impact of nutrition on the host physiology using high-throughput bioinformatics.

This opportunity will provide the following professional development opportunities:

1. Professional development in bioinformatics data analytics
2. Exposure in professional and scientific communities
3. In-depth knowledge and professional development in nutrition management and physiology in food animal production

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. The initial appointment is for one year,



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but may be renewed upon recommendation of ARS and is contingent on the availability of funds. The participant will receive a monthly stipend commensurate with educational level and experience. Proof of health insurance is required for participation in this program. The appointment is full-time. Participants do not become employees of USDA, ARS, DOE or the program administrator, and there are no employment-related benefits. A travel allowance will be provided to attend scientific conferences and meetings, as well as a health insurance stipend supplement to cover the cost of individual health insurance.

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.

For more information about the ARS Research Participation Program, please visit the [Program Website](#).

Qualifications A qualified candidate will have an educational background in the field molecular biology/genetics, population genetics, medical genetics or closely related fields.

The successful candidate should have demonstrated experiences in one or more of the following:

1. Molecular work experience, e.g., DNA/RNA extraction and quality check, primer design and implementation in PCR, RT-qPCR. etc.
2. Hands on experience in one or more current sequencing technologies and platforms, e.g., Illumina, Proton, Oxford Nanopore, PacBio, etc.
3. Practical experience in collecting and processing of animal tissues and microbial samples for RNA and protein work
4. Knowledge and understanding of bioinformatics
5. GPA preference: 3.2 or above

- Eligibility Requirements**
- **Degree:** Bachelor's Degree or Master's Degree.
 - **Discipline(s):**
 - **Life Health and Medical Sciences** ([11](#)👁)