Opportunity Title: USDA-ARS Postdoctoral Fellowship in Bioinformatics and Comparative Genomics
Opportunity Reference Code: USDA-ARS-NE-2023-0474

Organization U.S. Department of Agriculture (USDA)

Reference Code USDA-ARS-NE-2023-0474

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
- 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 recommendations

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

Application Deadline 3/15/2024 3:00:00 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 Beltsville, Maryland.

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: Sequencing and assembly advances are, for the first time, enabling the generation of complete, gapless diploid reference genomes for mammalian species. These new telomere-to-telomere (T2T) methods are being applied across the ruminant suborder through a large collaborative effort known as the Ruminant T2T Project (RT2T). The project will generate complete assemblies to characterize heterochromatic regions and genomic repeats, non-coding RNA components, small RNAs, centromeres and transposable elements. A research opportunity is available in the Animal Genomics and Improvement Laboratory to contribute to these efforts. The fellow will join this collaborative effort with the opportunity to assemble genomes and perform comparative genomics analyses across ruminants, under the guidance of a mentor. These analyses could include, but are not limited to, chromosomal evolution and centromere dynamics, three-dimensional genome structure, and epigenetic landscapes. The RT2T Project holds the potential to revolutionize our understanding of ruminant genomic diversity, evolution, and adaptation.

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The outcomes will contribute to agriculture, conservation efforts, and advancements in medical research, benefiting both human and animal populations.

Other opportunities are available for the fellow to participate in ongoing pangenome projects in cattle, sheep, and goats. The fellow could contribute to assembling individual genomes, build pangenomes, and integrate T2T assemblies into both species specific and cross-species pangenomes with the goal of understanding how features found in individual T2T genomes vary across populations.

Learning Objectives: As a result of this training the participant will have the opportunity to improve their skills in bioinformatics, genome assembly, genome assembly assessment and validation, epigenetics, 3D genome structure, comparative genomics, and pangenome construction.

Mentor(s): The mentor for this opportunity is Benjamin Rosen (ben.rosen@usda.gov). If you have questions about the nature of the research, please contact the mentor(s).

Anticipated Appointment Start Date: Jan 1, 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.

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

Qualifications The qualified candidate should have received a doctorate in one of the

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relevant fields. Degree must have been received within the past five years.

Experience with genome assembly and pangenome construction methods is desired.

Eligibility Requirements

- **Degree:** Doctoral Degree received within the last 60 month(s).
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (9 👁)
  - **Computer, Information, and Data Sciences** (5 👁)
  - **Engineering** (3 👁)
  - **Environmental and Marine Sciences** (13 👁)
  - **Life Health and Medical Sciences** (39 👁)
  - **Mathematics and Statistics** (3 👁)
  - **Physics** (2 👁)
  - **Science & Engineering-related** (1 👁)