Opportunity Title: Postdoctoral Research Opportunity in Animal Genetics-Disease Traceability
Opportunity Reference Code: USDA-APHIS-2019-0109

Organization U.S. Department of Agriculture (USDA)

Reference Code USDA-APHIS-2019-0109

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.

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

Application Deadline 9/5/2019 3:00:00 PM Eastern Time Zone

Description ***Applications will be reviewed on a rolling-basis.**

The Pathology Section (PS) at the U.S. Department of Agriculture's National Veterinary Services Laboratories (NVSL) in Ames, Iowa has the responsibility of identifying several diseases of importance in livestock including tuberculosis and transmissible spongiform encephalopathies such as BSE, CWD and scrapie. These diseases are often identified in surveillance samples where a large number of samples from many different producers are examined. To maintain test result integrity, positive samples must be matched to the animal identification devices provided with the samples and traced to their origin. When the trace is in question, or the ID devices are missing, sequencing or SNP chips must be used to help identify the animal species, parentage, sex and breed. Some of these methods often take weeks for results and must be referred to external laboratories. Currently, NVSL only performs microsatellite testing in-house for cattle and sheep.

It is critical to protect US agriculture by quickly and accurately identifying the source of disease. The objective of this project and learning opportunity is to use amplicon sequencing to combine as many of the current methods as possible into a single work flow. This entails identifying previously characterized SNPs as well as analyzing sequence and SNP chip data to find relevant amplicons needed to identify species and breeds, and conducting research with our collaborators at universities and within USDA's Agricultural Research Service who have expertise in animal genetics and bioinformatics. The selected participant will also collaborate with pathologists, microbiologists, veterinarians, and biotechnicians within NVSL to support the diagnostic mission. Under the guidance of a mentor, the participant will have the opportunity to learn about zoonotic diseases and their impact on interstate and international trade and community health. The participant will learn surveillance procedures, diagnostic testing methodologies and algorithms, whole genome sequencing, and molecular epidemiology. The participant will present their data at national and international meetings involving researchers, regulatory officials, and producer groups.

Anticipated Appointment Start Date: September 2019

This program, administered by ORAU through its contract with the U.S. Department of Energy

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(DOE) to manage the Oak Ridge Institute for Science and Education (ORISE), was established through an interagency agreement between DOE and APHIS. The initial appointment is for one year, but may be renewed upon recommendation of APHIS and is contingent on the availability of funds. The participant will receive a monthly stipend commensurate with educational level and experience. The annual stipend rate for this opportunity will be determined upon selection and will range between $61,000 and $87,000. Relocation expenses are not available. There will be $5,000 available for travel expenses to visit collaborators at universities and other USDA facilities. Proof of health insurance is required for participation in this program. Candidates will be eligible to receive a health insurance allowance. Health insurance can be obtained through ORISE. The appointment is full-time at APHIS in the Ames, Iowa, area. Participants do not become employees of USDA, APHIS, DOE or the program administrator, and there are no employment-related benefits.

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 for information about the valid immigration statuses that are acceptable for program participation.

Background investigations are required for the selected candidate so the individual can handle select agents and participate in biocontainment without an escort. Adjudication of a Special Agency Check (SAC) is required before the selected candidate can start. Paperwork for this clearance will be sent to the selected candidate after acceptance of the official offer from ORAU.

Research is performed in a BSL-2/3 laboratory. Handling unknown pathogenic agents mandates the use of biocontainment hoods and wearing personal protective gear, which is strenuous on the individual.

This is an equal opportunity program open to all qualified individuals without regard to race, color, age, sex, religion, national origin, mental or physical disability, genetic information, sexual orientation, or covered veteran's status.

Qualifications

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

Preferred skills:

- Knowledge of animal genetics and livestock breeds
- Experience with nucleic acid sequencing and analysis
- Ability to handle large sequencing data sets and some basic bioinformatic skills
- Knowledge of general laboratory practices including the use of common laboratory equipment (centrifuge, micropipettes, biosafety cabinets, microscope, etc.)
- Functional knowledge of molecular techniques such as: PCR; real-time PCR; PCR primer/probe design and validation; DNA/RNA isolation
- Proficiency in technical writing, oral communication, interpersonal and organizational skills, as well as critical thinking skills to develop experimental approaches and interpret data
- Demonstrates flexibility and self-motivation
- A background in microbiology and diseases

Eligibility Requirements

- **Degree:** Doctoral Degree.
- **Discipline(s):**
  - **Computer, Information, and Data Sciences** (1 👁)
  - **Environmental and Marine Sciences** (1 👁)
  - **Life Health and Medical Sciences** (15 👁)

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