

Opportunity Title: CDC Bioinformatics Fellowship
Opportunity Reference Code: CDC-NCIRD-2021-0259

Organization Centers for Disease Control and Prevention (CDC)

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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
- One educational or professional recommendation. Your application will be considered incomplete, and will not be reviewed until one recommendation is submitted.

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

Description ***Applications will be reviewed on a rolling-basis, and this opportunity will remain open until qualified candidates are identified.**

CDC Office and Location: Two research opportunities are currently available with the Division of Viral Diseases (DVD), National Center for Immunization and Respiratory Diseases (NCIRD), at the Centers for Disease Control and Prevention (CDC) located in Atlanta, Georgia.

DVD is responsible for surveillance of many viruses associated with vaccine preventable and non-vaccine preventable diseases. The availability of next-generation sequencing (NGS) technologies now makes it possible to routinely obtain full genomic sequence information from clinical samples. As part of implementing Advanced Molecular Detection methodologies for DVD, development of standardized bioinformatics pipelines is key for ensuring timely and accurate analysis of genomic sequencing data for viruses.

Research Project: To help accomplish this goal, the selected participant will join the DVD NGS Core Bioinformatics Team. Under the guidance of a mentor, opportunities include:

- Evaluating existing bioinformatics protocols for analysis of NGS data from short-read (Illumina) and long-read (PacBio, Oxford Nanopore) platforms, to determine which is most suitable for efficient sequencing of RNA viruses
- Contribute to maintenance, testing and development of an automated NGS bioinformatics pipeline (VPipe) currently utilized by both the Division and external public health scientists for analysis of NGS data
- Optimizing and standardizing bioinformatics protocols, and to develop efficient workflows for generation of whole genome sequences for viruses studied in DVD (i.e., polioviruses, measles virus, rotaviruses, etc.). Particular focus will be spent on development of automated pipelines for analysis of Oxford Nanopore data.
- Participate in the development of solutions for integration of sequencing and




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epidemiological databases

- Management of NGS data, annotation, and submission of sequence data to public databases (i.e. NCBI)

The results of this research project will provide DVD with optimized standardized bioinformatics workflows for assembly and annotation of genome data for viruses, to support surveillance for vaccine-preventable and other viral diseases. The selected participant will collaborate with subject matter experts and team members who are performing research on various viruses throughout DVD, and will provide bioinformatics support for analysis of data derived from several NGS platforms (e.g., Illumina, PacBio, Oxford Nanopore).

Learning Objectives:

- Evaluate existing bioinformatics pipelines used for analysis of sequence data from RNA viruses
- Enhance functionality of automated NGS bioinformatics pipeline to include long-read data analysis
- Develop workflows for whole genome sequences of viruses studied in DVD in collaboration with program subject matter experts

Mentor(s): The mentor for this opportunity is William Weldon (wiw4@cdc.gov). If you have questions about the nature of the research please contact the mentor(s).

Anticipated Appointment Start Date: As soon as a qualified candidates are identified. 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 CDC 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 CDC. Participants do not become employees of CDC, 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.CDC.NCIRD@orau.org

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and include the reference code for this opportunity.

Qualifications

The qualified candidate should have received a bachelor's, master's or doctoral degree in one of the relevant fields, or be currently pursuing one of the degrees and will reach completion by the start date of the appointment. Degree must have been received within five years of the appointment start date.

Preferred skills:

- Experience in bioinformatics and scripting (e.g. Linux/command line, R, Python and/or Perl)
- Experience in molecular biology

Eligibility Requirements

- **Degree:** Bachelor's Degree, Master's Degree, or Doctoral Degree received within the last 60 months or currently pursuing.
- **Academic Level(s):** Graduate Students, Post-Bachelor's, Postdoctoral, Post-Master's, or Undergraduate Students.
- **Discipline(s):**
 - **Computer, Information, and Data Sciences** (2 👁)
 - **Life Health and Medical Sciences** (12 👁)