Opportunity Title: EPA Big Data and Environmental Health Risks Fellowship
Opportunity Reference Code: EPA-ORD-CPHEA-PHITD-2020-12

Organization	U.S. Environmental Protection Agency (EPA)
Reference Code	EPA-ORD-CPHEA-PHITD-2020-12
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
- 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. Click here for detailed information about recommendations.

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

Application Deadline	3/1/2021 3:00:00 PM Eastern Time Zone
Description	***Applications may be reviewed on a rolling-basis and this posting could close before the deadline.*** Click **here** for information about the selection process.

EPA Office/Lab and Location: A research opportunity is available at the Environmental Protection Agency (EPA), Office of Research and Development (ORD), Center for Public Health Environmental Assessment (CPHEA), Public Health and Integrated Toxicology Division (PHITD), Clinical Research Branch (CRB) located in Chapel Hill, North Carolina.

Research Project: Drs. Cavin Ward-Caviness and Ana Rappold have a research opportunity for a self-motivated postdoctoral researcher. This opportunity includes participating in research on innovative projects that will provide unique opportunities to analyze molecular and epidemiologic data in the context of environmental public health research. The projects will develop biomarkers of environmental sensitivity which can identify individuals at increased risk from environmental exposures, better advance our ability to assess exposures to pollutants such as wildfire smoke, and use unique data - such as data collected from mobile applications and electronic health records - to better assess environmental health risks.

This opportunity is at the US Environmental Protection Agency, Clinical Research Branch which is devoted to an intimate understanding of the links between environmental exposures and disease as well as the underlying molecular mechanisms that
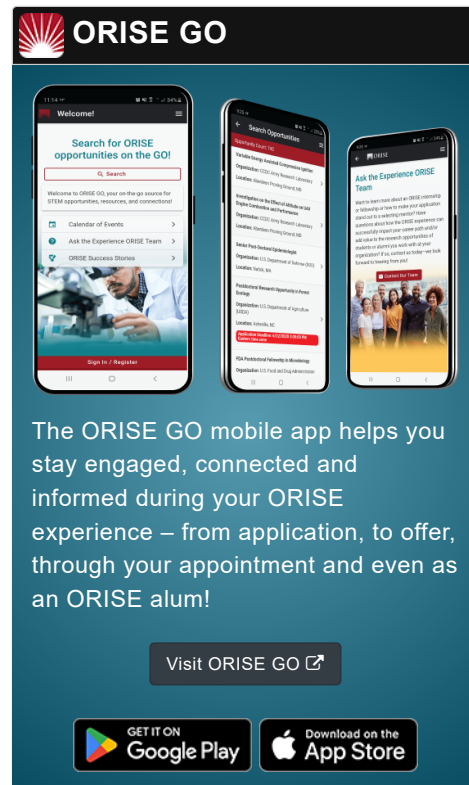
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may mediate exposure-related effects and/or increase exposure sensitivity. Dr. Ward-Caviness is a recognized leader in the analysis of molecular data for environmental health, particularly in the field of epigenetic aging and genetic risks. Dr. Rappold is a recognized leader in the research related to air pollution and wildfire smoke impacts on clinical outcomes in population, and made key contributions in our understanding of health risks associated with such exposures. Thus, this presents a unique opportunity with innovative projects that have the potential to drive environmental health for years to come.

Learning Objectives: The research participant will utilize a wealth of molecular data (DNA methylation, gene transcription, and metabolomics) and app based data to understand the key drivers of environmental health risks. The analytical tools employed within this project will involve machine learning and potentially deep learning approaches. The research participant will have an opportunity to gain invaluable experience in the analysis of molecular data, development of molecular biomarkers of health outcomes, exposure assessment (particularly in the area of wildfires), and analysis of unique mobile application-based data. There is strong potential for the development of independent research projects that emerge over the course of this opportunity.

Mentor(s): The mentors for this opportunity are Dr. Cavin Ward-Caviness (ward-caviness.cavin@epa.gov) and Dr. Ana Rappold (rappold.ana@epa.gov). If you have questions about the nature of the research please contact the mentor(s).

Anticipated Appointment Start Date: Spring 2021. All start dates are flexible and vary depending on numerous factors. Click **here** for detailed information about start dates.

Appointment Length: The appointment will initially be for one year and may be renewed up to three or four additional years upon EPA recommendation and subject to availability of funding.

Level of Participation: The appointment is full-time.

Participant Stipend: The participant will receive a monthly stipend commensurate with educational level and experience. Click **here** for detailed information about full-time stipends.

EPA Security Clearance: Completion of a successful background investigation by the Office of Personnel Management (OPM) is required for an applicant to be on-boarded at EPA.

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

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between DOE and EPA. Participants do not become employees of EPA, 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 see the FAQ section of our website. After reading, if you have additional questions about the application process please email EPArpp@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, or be currently pursuing the degree with completion by the appointment start date. Degree must have been received within five years of the appointment start date.

Preferred skills:

- Experience creating and executing study designs for epidemiology studies, including mixed/hierarchical models and survival models
- Experience in advanced statistical techniques in the field of regression, deep learning, and/or artificial intelligence
- Significant experience with R
- Proficient with Python
- Experience cleaning and manipulating large datasets
- Experience in selecting appropriate statistical models for a task and interpreting the results of such models
- Familiarity with high-dimensional analyses, penalized regression, and dimension reduction techniques
- Excellent writing and presentation skills
- Self-motivated & independent

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Doctoral Degree received within the last 60 months or anticipated to be received by 5/28/2021 11:59:00 PM.
- **Discipline(s):**
  - **Environmental and Marine Sciences** (2 👁)
  - **Life Health and Medical Sciences** (4 👁)
  - **Mathematics and Statistics** (4 👁)
- **Veteran Status:** Veterans Preference, degree received within the last 120 month(s).