Opportunity Title: EPA Fellowship on the Impact of Climate Change and Living Environment on Cardiopulmonary Health and Behavior
Opportunity Reference Code: EPA-ORD-CPHEA-PHITD-2024-15

Organization U.S. Environmental Protection Agency (EPA)

Reference Code EPA-ORD-CPHEA-PHITD-2024-15

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 2/28/2025 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 and Environmental Assessment (CPHEA), Public Health & Integrated Toxicology Division (PHITD) in Research Triangle Park, North Carolina.

Research Project: PHITD research focuses on the characterization and biological mechanisms of adverse health effects of environmental pollutants. Results of this research are published in peer-reviewed journals and inform EPA's environmental assessments and planning for air quality standards. The Division uses a variety of approaches to study toxicity of environmental pollutants, including cell cultures, animal models, and human studies. PHITD participates in several of EPA's national research programs, especially the Air, Climate and Energy (ACE) and Sustainable and Healthy Communities (SHC) research programs. PHITD formulates and conducts research designed to: identify and describe non-chemical stressors (heat, living conditions, diet) that impact overall health and resiliency to environmental exposures, characterize the relationships between air quality, climate change, and adverse health effects; evaluate the health effects of energy generation and combustion products from biomass; characterize the health effects of individual major pollutants (such as ozone, nitrogen oxides, and particles) and multipollutant mixtures; assess the toxicity of pollutants near sources such as roads, ports, wildfires, and urban areas; and identify susceptibility factors of at-risk human populations (such as asthmatics and those with cardiovascular disease) who are disproportionately impacted by pollution, and characterize the effects and mechanisms of responses to specific pollutants in susceptible populations.

This research training opportunity will address the growing need to assess the impacts of non-environmental factors that modify body resiliency and subsequent response to stressors like air pollution (e.g. wildfire smoke) and extreme heat (>95 degrees F). Investigations will focus on the

Opportunity Title: EPA Fellowship on the Impact of Climate Change and Living Environment on Cardiopulmonary Health and Behavior
Opportunity Reference Code: EPA-ORD-CPHEA-PHITD-2024-15

effects of psychosocial factors on the development of cardiovascular dysfunction, behavior changes and increased pain sensitivity. In particular, the goal is to determine the role of long-term living conditions and temperature on the basic physiological, molecular and epigenetic state of the body. As such, we use in-vivo approaches in rodents to parallel human conditions and indicators and assess resiliency.

Under the guidance of a mentor, the research participant activities may include:

- Study conceptualization, design and implementation.
- Rodent cardiopulmonary surgical techniques.
- Ultrasound echocardiography.
- Microbiome analysis.
- Molecular techniques.
- Cardiovascular physiology data analysis.
- Presenting study results.
- Writing manuscripts.

Learning Objectives: Research learning objectives will include:

- Thinking critically regarding environmental exposures and health concerns and designing and conducting hypothesis-driven research that addresses these issues.
- Learning rodent surgical techniques.
- Using state-of-the-art equipment to assess cardiovascular function in rodents in response to air pollution exposure using ultrasound technology.
- Performing cardiopulmonary data analysis.
- Learning to prepare and submit manuscripts for publication in peer-reviewed journals.

Mentor(s): The mentor for this project is Mehdi Hazari (hazari.mehdi@epa.gov). If you have questions about the nature of the research please contact the mentor(s).

Anticipated Appointment Start Date: Winter/Spring 2025. 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 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 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.

ORISE offers all ORISE EPA graduate students and Postdocs a free 5 year membership to the National Postdoctoral Association (NPA).

The successful applicant(s) will be required to comply with Environmental, Safety and Health

Opportunity Title: EPA Fellowship on the Impact of Climate Change and Living Environment on Cardiopulmonary Health and Behavior
Opportunity Reference Code: EPA-ORD-CPHEA-PHITD-2024-15

(ES&H) requirements of the hosting facility, including but not limited to, COVID-19 requirements (e.g. facial covering, physical distancing, testing, vaccination).

Questions: Please see the FAQ section of our website. After reading, if you have additional questions about the application process please email ORISE.EPA.ORD@orau.org and include the reference code for this opportunity.

Qualifications

The qualified candidate is strongly recommended to have a doctoral degree in one of the relevant fields or be currently pursuing with completion before the appointment start date. Post-baccalaureate and post-master's applicants will also be considered. Degree must have been received within five years of the appointment start date.

Preferred skills/experience:

- The candidate shall have the ability to conduct research activities in a physiology/biology/toxicology laboratory setting.
- A basic knowledge of standard computer programs.
- An interest in biological/physiological and toxicology research.
- The candidate should possess strong organizational skills with respect to time and database management experience (i.e., evidence of experience with spreadsheet preparation, data collection, ability to complete tasks in a reasonable timeline).
- The candidate should be familiar with basic laboratory health and safety procedures.
- Prior laboratory experience as well as animal handling experience is highly desirable.
- The candidate should also be familiar with word processing systems (Word or Word Perfect), spreadsheets (Excel or Lotus), and PowerPoint presentation.

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Bachelor's Degree, Master's Degree, or Doctoral Degree received within the last 60 months or currently pursuing.
- **Discipline(s):**
  - **Environmental and Marine Sciences** (2 👁)
  - **Life Health and Medical Sciences** (10 👁)