Opportunity Title: EPA Fellowship to Investigate the Role of Environmental Pollutants on Adverse Pregnancy Outcomes
Opportunity Reference Code: EPA-ORD-CPHEA-PHITD-2023-05

Organization U.S. Environmental Protection Agency (EPA)

Reference Code EPA-ORD-CPHEA-PHITD-2023-05

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 9/15/2023 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: Exposure to unhealthy environments during pregnancy increases the risk of maternal and fetal morbidity and mortality. Further, such prenatal exposures may also impact the risk of pulmonary and cardiometabolic diseases as offspring age, referred to as the Developmental Origins of Health and Disease (DOHaD) hypothesis. However, the extent to which air pollutants may modulate such outcomes in both mothers and their offspring is poorly understood. This research project will focus on the impacts of air pollutants (e.g., ozone, wildland fire smoke, cadmium, BTEX) on maternal health and fetal development. Through the use of multidisciplinary approaches, this project will investigate the impacts of such chemicals with a specific focus on the maternal vascular system and placenta as key targets of toxicity. Complementary in vitro screening may also be employed to investigate the bioactivity of maternal serum on models of trophoblast migration and invasion. The research participant will have the opportunity to participate in ongoing studies investigating the contribution of non-chemical stressors (e.g., diet) in mediating the adverse reproductive and developmental responses to pollutants.

Under the guidance of a mentor, the participant will have the opportunity to be involved in all aspects of the research project, which may include:

- Collecting data and assisting in the care of our animal colony

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- Preparing tissues for further molecular assessment (e.g., RNA/DNA isolation)
- Performing in vitro assays
- Analyzing/interpreting scientific data
- Physiology assessments in rodents such as Doppler ultrasonography, indirect calorimetry, and whole body plethysmography
- Molecular biology techniques including qPCR, ELISA, and western blots
- Cell culture and histopathology

Learning Objectives: Under the guidance of a mentor, the research participant will have the opportunity to interact with a team of multidisciplinary scientists with expertise in air pollution, epigenetics, developmental and reproductive biology, chemistry and engineering. Research learning objectives may include:

1. Acquiring knowledge related to the impacts of air pollutants on maternal and fetal health, and the techniques involved in their study.
2. Acquiring knowledge and skills in molecular biology techniques to characterize the transcriptomic, proteomic, and/or metabolomic changes in tissues and cells.
3. Developing knowledge and skills in designing, conducting, analyzing, and synthesizing research for communication to the broader scientific audience.

Mentor(s): The mentor for this project is Colette Miller (miller.colette@epa.gov). If you have questions about the nature of the research please contact the mentor(s).

Anticipated Appointment Start Date: August 1, 2023. 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 (ES&H) requirements of the hosting facility, including but not limited to, COVID-19 requirements (e.g. facial covering, physical distancing, testing, vaccination).

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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 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 with completion before the appointment start date. Degree must have been received within five years of the appointment start date.

Preferred skills/experience in one or more of the following techniques:

- Performing and analyzing physiology assessments in rodents such as Doppler ultrasonography, echocardiography, body composition and indirect calorimetry (metabolic rate), or whole body plethysmography.
- Histology, immunohistochemistry, and microscopy.
- Research experience in cell culture techniques, including the development and optimization of cell assays to demonstrate toxicity.
- Design and analysis of scientific studies, including the analysis of large datasets from RNA sequencing, metabolomic, and proteomic workflows.
- Experience in common molecular biology techniques (qPCR, ELISAs, western blots). Working knowledge of such techniques in order to be able to troubleshoot and assist with training is strongly desired.

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** (1)
  - **Life Health and Medical Sciences** (19)