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Opportunity Title: EPA Toxicology Internship
Opportunity Reference Code: EPA-ORD-CPHEA-PHITD-2021-22

Organization U.S. Environmental Protection Agency (EPA)

Reference Code EPA-ORD-CPHEA-PHITD-2021-22

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 3/28/2022 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) located in Durham, North Carolina.

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 in planning for air quality standards.

Research Project: The purpose of this research project is to characterize the health impacts of air pollutants (combustion-source; wood-burning stoves, wildland fire, oxidants; smog, ozone, or irritant pollutants; VOCs, acrolein), using complementary in vivo and in vitro approaches to define risk factors of susceptibility such as life stage of development. The research activities will focus on the application of multidisciplinary research methods and integrative physiology to characterize risk. To accomplish this, the participant will have the opportunity to interact with an interdisciplinary team of toxicologists and environmental engineers to collaborate on approaches to address critical goals in EPA's Air and Energy (A-E) and Sustainable and Health Community (SHC) research programs.

Over the last 2 decades, we have gained increased understanding of the critical role that healthy fetal and early childhood environments play in establishing healthy adolescents and, ultimately, healthy adults later in life.

Hence, research on how adverse environments or stressors may serve to increase one's risk of developing respiratory, metabolic, cardiovascular, or neurological conditions is needed. Current investigations suggest that the nature of the long-term health impact is dependent not only on "dose", but also on the timing of exposure. Thus, increased knowledge of windows of susceptibility and mechanisms of adverse outcome pathways are essential.

With guidance from the Mentor, along with other branch toxicologists and atmospheric scientists, the ORISE participant may be involved in development and implementation of specific activities including:

1. Assist in planning studies in which rodents and cell-based systems are exposed to air pollutants or various chemical and non-chemical stressors.
2. Select, perform, and troubleshoot protein assays including ELISAs, Western Blotting, Immunoprecipitation, Immunohistochemistry and Immunofluorescence, Molecular Toxicology, and Flow Cytometry.
3. Optimize isolation of primary cell populations for functional characterization in vitro.
4. Assist in development of in vivo animal models of susceptibility (pregnancy, neonatal and adolescent life stages, dietary deficiency) to examine differential health outcomes.
5. Collect tissues during a necropsy for protein isolation or for changes in steady state gene expression or genome sequencing.
6. Participate in short-term inhalation toxicity testing of healthy rodents and disease models to assess respiratory and cardiometabolic health effects.

Learning Objectives: Under the guidance of a mentor, the research participant will have the opportunity to interact with an interdisciplinary team and learn how to:

1. think critically about environmental exposures, associated health concerns, and how the various body systems contribute to overall adverse health outcomes;
2. design and conduct hypothesis-driven research that address environmental concerns;
3. use state-of-the-art equipment for physiological characterizations of both rodents and cells;
4. use state-of-the-art equipment for protein-based or gene-based assays;
5. handle laboratory animals and perform necropsy procedures;
6. perform cell culture, in vitro exposures, and related microscopy procedures, and
7. prepare and submit manuscripts for publication in peer-reviewed journals.

Th research participant will also have the opportunity to develop skills in planning, conducting, and communicating scientific research in the context of significant real-world environmental health effects. The research participant may have opportunities to present research findings at local conferences and up to one society conference per year in order to interact

with a broad group of scientists at EPA and elsewhere.

Mentor(s): The mentors for this opportunity are Dr. Colette Miller (miller.colette@epa.gov) and Janice Dye (dye.janice@epa.gov). If you have questions about the nature of the research please contact the mentor(s).

Anticipated Appointment Start Date: Winter/Spring 2022. 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 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 ORISE.EPA.ORD@orau.org and include the reference code for this opportunity.

Qualifications

The qualified candidate should have received a bachelor's 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 the past five years.

Preferred skills (if you have any such experience, please describe in your application):

- Experience in the design and troubleshooting of antibody-based assays (i.e., ELISA, Western Blots, Flow Cytometry)
- Experience in the maintenance and characterization of both primary cell cultures and cell lines
- Experience in the selection and application of statistical methods used in health effects research
- Entry-level experience using mammalian model systems, handling of rodents, and physiological methodologies

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Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Bachelor's Degree received within the last 60 months or anticipated to be received by 3/31/2022 11:59:00 PM.
- **Discipline(s):**
  - **Life Health and Medical Sciences** (8 👁)
- **Veteran Status:** Veterans Preference, degree received within the last 120 month(s).