

Opportunity Title: EPA Internship on Mechanism of Toxicity Following

Respiratory Exposure to PFAS

Opportunity Reference Code: EPA-ORD-CPHEA-PHITD-2022-03

Organization U.S. Environmental Protection Agency (EPA)

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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.

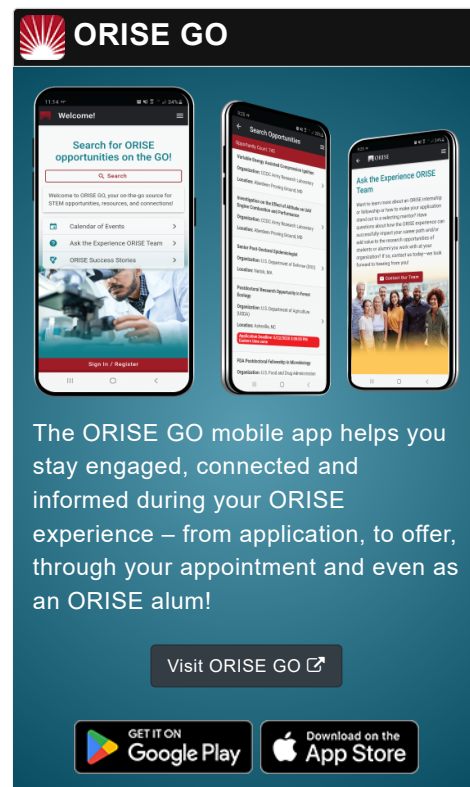
All documents must be in English or include an official English translation.

Application Deadline 12/31/2022 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 Research Triangle Park, North Carolina.

Research Project: Perfluoroalkyl substances (PFAS) are widely used chemicals which persist and accumulate in the environment. PFAS present in the air can be taken up by the respiratory tract, where they can concentrate at the air-liquid interface and act as synthetic surfactants. The integrity and function of normal pulmonary surfactant, a mixture of phospholipids and proteins in the lung lining fluid, may be disrupted by PFAS deposited in the respiratory tract, potentially causing severe respiratory dysfunction. The ability of different classes of PFAS to disrupt lung surfactant function can be investigated with novel techniques using in vitro systems. This in vitro screening could be used to select PFAS compounds for subsequent in vivo studies. The in vivo studies could include targeted rodent assays to assess the effects of select PFAS compounds on respiratory function, cardiopulmonary injury, and pathology. Toxicity data from the in vitro and in vivo assays may enable a more targeted approach to assess human health effects



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in populations with higher concentrations of PFAS in their environment. The selected research participant may have the opportunity to collaborate with EPA scientists involving the ability of other types of air pollutants to affect lung surfactant function in vitro, and correlate these results with corresponding in vivo toxicity studies.

With guidance from the mentor, the research participant will have the opportunity to conduct research in collaboration with an interdisciplinary team of EPA scientists in the following areas:

- 1. Refining and applying new techniques to screen for ability of PFAS and other chemicals to affect pulmonary surfactant function in vitro.
- 2. Designing novel analytical approaches and refining in vivo testing methods to assess health effects of PFAS and other similar toxic air pollutants.
- 3. Evaluating the physiological, immunological, and molecular responses following respiratory exposure to PFAS in the context of the physical and chemical properties of these compounds
- 4. Developing approaches to compare the in vivo rodent assays with results from the in vitro assays to support PFAS risk assessment.

Learning Objectives: Research learning objectives may include:

- 1. Acquiring knowledge and skills related to the effects of persistent PFAS and other persistent air pollutants on cardiovascular and respiratory health.
- 2. Acquiring knowledge and skills related to applied molecular biology techniques for assessment of protein, genetic, or tissue changes in exposed animals.
- 3. Developing knowledge and skills in designing, conducting, analyzing, and synthesizing research for communication to the broader scientific audience.
- 4. Developing skills in presenting research findings at scientific society conferences and interacting with a broad group of scientists at the EPA and elsewhere.

Mentor(s): The mentor for this opportunity is Stephen Gavett (gavett.stephen@epa.gov). If you have questions about the nature of the research please contact the mentor(s).

Anticipated Appointment Start Date: Fall 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 upon EPA recommendation and subject to availability of funding.

Level of Participation: The appointment is full-time.

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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).

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@ornl.gov and include the reference code for this opportunity.

Qualifications

The qualified candidate should have received a bachelor's, master's, or doctoral (preferred) degree in one of the relevant fields, or be pursuing one of the degrees with completion before August 1, 2022. Degree must have been received within the past five years.

Preferred skills/experience:





- Experience in experimental design and statistical analysis
- Experience in handling and performing physiology experiments on rodents
- Experience in performing standard molecular biology techniques

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Bachelor's Degree, Master's Degree, or Doctoral Degree received within the last 60 months or anticipated to be received by 8/1/2022 11:59:00 PM.
- **Discipline(s):**

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- **Chemistry and Materials Sciences** (5 )
- **Earth and Geosciences** (1 )
- **Environmental and Marine Sciences** (2 )
- **Life Health and Medical Sciences** (21 )