Opportunity Title: EPA Fellowship on Adverse Outcome Pathways for Neurotoxicity and Developmental Neurotoxicity: Proteomics and Genomics Approach
Opportunity Reference Code: EPA-ORD-CPHEA-PHITD-2024-07

Organization U.S. Environmental Protection Agency (EPA)

Reference Code EPA-ORD-CPHEA-PHITD-2024-07

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 12/6/2024 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 post-doctoral research training 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: Research conducted at ORD/CPHEA-PHITD-NETB is focused on providing a scientific foundation to identifying hazardous chemicals, assessing their potential risk, and safeguarding both public health and the environment. More specifically, we are interested in developing New Approach Methodologies (NAMs) for neurotoxicity (NT) and developmental neurotoxicity (DNT) testing and prioritization of chemicals. Our initial attempt is to understand how NT and DNT chemicals affect functional process in neuronal development, which is used as a current NAM. Here, we compare already collected microelectrode assay (MEA) data, which provide adverse effects on neuronal connectivity, with protein/gene changes in primary rat cortical cultures exposed to the same chemicals. Next, we will compare the proteomic/genomic results seen in vitro using cortical cultures with those seen in vivo using animals following exposure to similar chemicals. The ultimate goal is to develop more sensitive NAMs at molecular level using O'mics approach and also provide scientific support to the existing NAMs such as Neurite outgrowth and MEA. The research participant will participate in a collaborative environment with labs within CPHEA-PHITD to establish sensitive neurotoxic (NT)/DNT screening methods for the growing number of untested chemicals in our environment, with an emphasis on connecting adverse outcome pathway (AOP) development using NAMs and functional

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responses to NT/DNT chemical exposures

The research participant will have the opportunity to be involved in the projects identifying the AOPs for selected neurotoxicants through proteomic and genomic analysis in vitro using neuronal cultures as well as in vivo in whole animal studies. Under the guidance of a mentor, the research participant will have the opportunity to be trained in evaluating neurochemical, molecular, and transcriptomic changes occurring following exposure to chemicals in vitro and in vivo. Moreover, the research participant will be trained in analyzing data and writing research publications. This research project will be closely integrated with ongoing projects in PHITD and collaborators in the CPHEA.

Learning Objectives: The primary research activities will focus on the in vitro portion of this study. Primary cortical cultures will be used in combination with proteomics and genomics to develop AOPs for NT/DNT chemicals.

Mentor(s): The mentors for this project are Dr. David Herr (herr.david@epa.gov) and Dr. Prasada Kodavanti (kodavanti.prasada@epa.gov). If you have questions about the nature of the research, please contact the mentor(s).

Anticipated Appointment Start Date: **Summer/Fall 2024**. 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).

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 doctoral degree in one of the relevant fields within

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five years of the appointment start date, or be currently pursuing this degree with completion by the appointment start date.

Preferred skills/experience:

- Experience in experimental design, cell culture techniques, statistical analysis, handing laboratory rodents, immunohistochemistry and performing standard biochemical and molecular biology techniques (e.g. genomic isolations, qRT-PCR, and protein assessments).
- Experience in handling rodents, chemical exposures, and performing toxicological studies.
- Experience in performing necropsies, and measurement of biochemical/immunohistochemical endpoints in rodents.
- Experience in summarizing experimental data, analyzing research results and preparing data for scientific publication and presentation.

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Doctoral Degree received within the last 60 months or currently pursuing.
- **Discipline(s):**
  - **Life Health and Medical Sciences** (12 👁)