

Opportunity Title: EPA Neurotoxic Chemicals Internship

Opportunity Reference Code: EPA-ORD-CPHEA-PHITD-2020-08

Organization U.S. Environmental Protection Agency (EPA)

Reference Code EPA-ORD-CPHEA-PHITD-2020-08

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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.

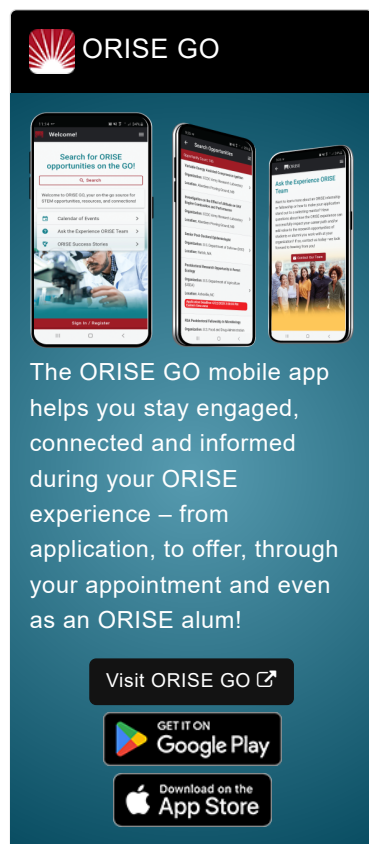
All documents must be in English or include an official English translation.

Application Deadline 10/22/2020 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: There are more than 100,000 chemicals that need prioritization for further toxicity testing. It would be very beneficial to develop rapid and sensitive methods to detect neurotoxicity/developmental neurotoxicity. One goal for the Agency is to develop a cost-effective and rapid assay based on sound systems in vitro biology for prioritizing chemicals for subsequent screening and neurotoxicity testing. Although developmental neurotoxicity testing (DNT), which focuses on a limited set of cellular phenotypic responses, has gained a lot of attention recently, understanding the adverse outcome pathways (AOPs; i.e. the underlying molecular mechanisms) in adult animals is vital for adult neurotoxicity testing and to expedite development of models for DNT assessment. We have been working on developing in vitro methods to understand in vivo functional and morphological outcomes. Research has focused on understanding the changes from the molecular -> cellular -> organ -> whole animal responses. Understanding multiple toxicity pathways at the same time is facilitated by current developments in genomic (study of all genes in an organism), proteomic (study of all proteins in an organism) and modeling technologies.



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The research participant will have the opportunity to be involved in 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 mentor, the research participant will 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. The research project will be closely integrated with ongoing projects in PHITD and collaborators in the CPHEA.

Research learning activities may include:

1. Experimental study design and problem-solving.
2. Performing primary neuronal cell cultures from rat cortical tissue and conduct several biochemical assays related to cytotoxicity, oxidative stress, and intracellular signalling.
3. Training in applying molecular biology techniques to assess protein and gene expression changes in cell cultures and tissue samples. The research participant will work in a team environment with other scientists to process and analyze the results.
4. Assisting the development of updated reports (oral, written) to inform mentors and collaborators about activities and results concerning research progress (e.g., presentations, posters, and manuscripts).
5. Communicating scientific findings by presenting results at scientific meetings.
6. Maintaining organization and quality assurance of own and team data and information, including physical samples, laboratory notebooks, and electronic files. This includes compliance with all laboratory Quality Assurance and management policies and requirements.

Learning Objectives: The research participant will have the opportunity to develop skills in designing, conducting, analyzing, and interpreting data for communication to the broader scientific audience. The research participant will have opportunities to present research findings at major society conferences and interact with a broad group of scientists at the EPA and elsewhere.

Mentor(s): The mentor for this opportunity is 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: Fall 2020. 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

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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 EPArpp@orau.org and include the reference code for this opportunity.

Qualifications The qualified candidate should have received a bachelor's or master's degree in one of the relevant fields, or be currently pursuing the degree with completion by October 2020. Degree must have been received within five years of the appointment start date.

Preferred skills:

- Experience in experimental design, cell culture techniques, statistical analysis, handling laboratory rodents, and performing standard biochemical and molecular biology techniques (e.g. genomic isolations, qRT-PCR, and protein assessments)

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Bachelor's Degree or Master's Degree received within the last 60 months or anticipated to be received by 10/1/2020 11:59:00 PM.
- **Discipline(s):**
 - **Communications and Graphics Design** ([2](#) 👁)
 - **Computer, Information, and Data Sciences** ([4](#) 👁)
 - **Life Health and Medical Sciences** ([18](#) 👁)
- **Veteran Status:** Veterans Preference, degree received within the last 120 month(s).