Opportunity Title: Cell Line Laboratory Support
Opportunity Reference Code: EPA-NSSC-0009-26-4-15-24

Organization U.S. Environmental Protection Agency (EPA)

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How to Apply Click HERE to Apply

Description The EPA National Student Services Contract has an immediate opening for a Bachelor's level full time Cell Line Laboratory Support position with the Office of Research and Development at the EPA facility in Research Triangle Park, NC.

The Office of Research and Development at the EPA supports high-quality research to improve the scientific basis for decisions on national environmental issues and help EPA achieve its environmental goals. Research is conducted in a broad range of environmental areas by scientists in EPA laboratories and at universities across the country.

What the EPA project is about

EPA's Center for Computational Toxicology and Exposure (CCTE) coordinates the High Throughput Toxicology (HTT) Research Program, which is part of EPA's broader Chemical Safety for Sustainability (CSS) Strategic Research Action Plan. Information and methods are needed to make better-informed, more-timely decisions about chemicals. The EPA's HTT research program within CSS is designed to meet this challenge. Current chemical testing is expensive and time consuming. Only a small fraction of chemicals have been fully evaluated for potential adverse human health effects. CCTE is working to determine how to change the current approaches used to evaluate the safety of chemicals. CCTE research integrates advances in biology, biotechnology, chemistry, and computer science. Automated chemical screening technologies (called "high-throughput screening assays") and informatics are being used to screen thousands of chemicals and identify important biological processes that may be disrupted by chemicals. Mathematical and advanced computer models are being developed to trace those disruptions to a related dose and human exposure and help link perturbations in biological processes to adverse health impacts. The combined information helps prioritize chemicals based on potential human health risks. Using HTT testing and computational methods, thousands of chemicals can be evaluated more quickly for potential risk at a reduced cost while also limiting the number of laboratory animal-based tests.

What experience and skills will you gain?

As a team member, you will provide laboratory support, data collection and data analysis to support a number of research efforts including 1) understanding the health risks of environmental mixtures, and 2) building and characterizing computational tools to interpret HTTr data generated in human cell lines and in the tissues of rodents. As part of these efforts the student may also 1) create and characterize human cell lines that lack the expression of genes important in mediating the effects of chemicals and mixtures, 2) expose cell lines to chemicals and chemical mixtures and

examine gene expression, 3) utilize a gene expression database to build and characterize gene expression biomarkers predictive of activation or suppression of individual factors important in toxicology, and 4) assist in animal testing of chemicals and mixtures including making dosing solutions, dosing animals, sacrifice of animals, removal and processing of tissues.

How you will apply your skills

As a team member, you will provide laboratory support, data collection and data analysis to support a number of research efforts including 1) understanding the health risks of environmental mixtures, and 2) building and characterizing computational tools to interpret HTTr data generated in human cell lines and in the tissues of rodents. As part of these efforts the student may also 1) create and characterize human cell lines that lack the expression of genes important in mediating the effects of chemicals and mixtures, 2) expose cell lines to chemicals and chemical mixtures and examine gene expression, 3) utilize a gene expression database to build and characterize gene expression biomarkers predictive of activation or suppression of individual factors important in toxicology, and 4) assist in animal testing of chemicals and mixtures including making dosing solutions, dosing animals, sacrifice of animals, removal and processing of tissues.

Lab support responsibilities:

- Cell culture and maintenance of cell lines;
- Creation and analysis of knockout cell pools using Crispr-Cas9 technology;
- Exposing cells to chemicals or chemical mixtures;
- Isolation of DNA, RNA and protein from human or animal cells;
- Creation of dosing solutions for rodent gavage studies;
- Gavage dosing of rodents, euthanasia of rodents and processing of tissues.

Computational support responsibilities:

- Use computational methods to assist in building and characterizing gene expression biomarkers;
- Use the biomarkers to identify chemicals or chemical mixtures that activate or suppress important toxicological targets of environmental chemicals;
- Analysis of gene expression from raw data using Partek Flow or R packages such as DESeq2;
- Annotation of databases to determine relationships between chemicals and protein targets;
- Application of word mining techniques for annotation of databases.

Communication support responsibilities:

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- Participating as a member of a multi-disciplinary research team;
- Documenting all research efforts;
- Presenting work in lab meetings and at scientific conferences as appropriate or .

Required Knowledge, Skills, Work Experience, and Education

- Demonstrated education and/or experience in cell culture, creation and analysis of knockout pools with Crispr-Cas9, RT-qPCR, Western analysis, chemical exposure of cells, carrying out studies in which rodents are treated with chemicals or mixtures;
- Strong written, oral and electronic communication skills;
- Proficient in Excel, Word, PowerPoint.

Desired Knowledge, Skills, Work Experience, and Education

- Experience using R language is desired.

Location: This job will be located EPA's facility in Research Triangle Park, NC.

Salary: Selected applicant will become a temporary employee of ORAU and will receive an hourly wage of $23.84 for hours worked.

Hours: Full-time

Travel: No travel expected

Expected start date: The position is full time and expected to begin May 2024. The selected applicant will become a temporary employee of ORAU working as a contractor to EPA.

For more information, contact EPANSSC@orau.org*. Do not contact EPA directly.*

EPA ORD employees, their spouses, and children are not eligible to participate in this program.

Qualifications

- Be at least 18 years of age **and**
- Have earned at least a BA/BS degree in one of the following fields: biology, chemistry, toxicology, pharmacology, environmental science, or a related field from an accredited university or college within the last 24 months **and**
- Be a citizen of the United States of America or a Legal Permanent Resident.

Eligibility Requirements

- **Citizenship:** LPR or U.S. Citizen
- **Degree:** Bachelor's Degree received within the last 24 month(s).
- **Discipline(s):**

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- **Chemistry and Materials Sciences** (12 👁)
- **Earth and Geosciences** (1 👁)
- **Environmental and Marine Sciences** (14 👁)
- **Life Health and Medical Sciences** (46 👁)

Affirmation I certify that I am at least 18 years of age; a recent graduate with at least a BA/BS degree in one of the following fields: biology, chemistry, toxicology, pharmacology, environmental science, or a related field from an accredited university or college within the last 24 months; a citizen or a Legal Permanent Resident of the United States of America; and not a current employee of EPA ORD or the spouse or child of an EPA ORD employee.

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