

**Opportunity Title:** EPA Fellowship on Applying High-Throughput Profiling Assays for Chemical Hazard Screening In Support of the TSCA New Chemicals Collaborative Research Program

**Opportunity Reference Code:** EPA-ORD-CCTE-BCTD-2023-07

**Organization:** U.S. Environmental Protection Agency (EPA)

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**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.

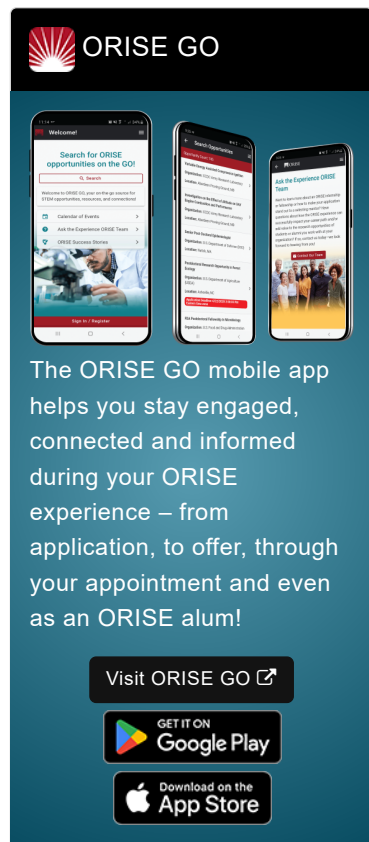
**Application Deadline:** 7/7/2023 3:00:00 PM Eastern Time Zone

**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 with the **Rapid Assay Development Branch** at the Environmental Protection Agency (EPA), Office of Research and Development (ORD), Center for Computational Toxicology and Exposure (CCTE), Biomolecular & Computational Toxicology Division (BCTD) located in Durham, North Carolina.

**Research Project:** The Center for Computational Toxicology and Exposure (CCTE) within the United States Environmental Protection Agency (US EPA) Office of Research and Development (ORD) focuses on developing the tools, approaches and data needed to modernize chemical risk assessment and foster the incorporation of more efficient, non-traditional toxicity testing strategies into regulatory decision making. Recently, a multi-year collaborative research project between ORD and the US EPA Office of Chemical Safety and Pollution Prevention (OCSPP) was launched. This project is known as the New Chemicals Collaborative Research Program (NCCRP) (<https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/new-chemicals-collaborative>). The overarching goal of this project is to develop and implement computational and in vitro new approach methodologies (NAMs) in support of new chemical evaluations required under the Toxic Substances Control Act (TSCA).

One component of this collaboration is to explore the utility of high-throughput profiling (HTP) assays conducted in human-derived cells to inform chemical categorization in the context of a TSCA new chemical



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submission. To date, two high-throughput profiling assays have been established at CCTE: 1) imaging-based high-throughput phenotypic profiling (HTPP) using the Cell Painting assay and 2) high-throughput transcriptomics (HTTr) using targeted RNA-Seq. These assays are compatible with multiple human-derived cell types, which when used in combination in a testing battery can provide information on many different toxicologically relevant biological targets and cellular processes. This research project aims to evaluate a collection of structurally-diverse, TSCA-relevant chemicals with little or no existing toxicological data using the HTPP and HTTr approaches. Chemicals will be evaluated in a battery of human-derived cell types of various tissue origins in order to inform different aspects of human biology. The resulting data will then be combined with information from targeted in vitro assays (e.g. safety pharmacology panel, genotoxicity, developmental toxicity) to inform chemical groupings based on biological response similarity. There is also opportunity for this project to extend to other chemical classes of interest to US EPA such as perfluoroalkyl acids (PFAAs) and environmentally-relevant mixtures.

The research participant will execute high-throughput chemical screening experiments using HTPP, HTTr in a human-derived cell line battery, analyzing and reporting experimental results and interfacing with a multidisciplinary team of researchers to advance the goals of the NCCRP.

The research participant will learn how to:

- Design and conduct high-throughput chemical bioactivity screen using laboratory automation.
- Apply computational concentration-response modeling and profile similarity approaches to analyze and interpret high-throughput profiling data.
- Synthesize results for publications and presentations.

**Learning Objectives:** Participatory activities and opportunities for gained experience include:

- Leadership and hands-on participation in experimental research in a toxicology laboratory setting.
- Building expertise in computational toxicology approaches by leading data analysis efforts.
- Active participation in project team, branch and division meetings.
- Preparing presentations, internal reports and data summaries.
- Presenting at scientific conferences.
- Authoring manuscripts for publication in peer-reviewed journals.

The successful candidate will have the opportunity to collaborate with a multidisciplinary team of EPA scientists to pursue research in the field of in vitro toxicology, new approach methods (NAMs) and next generation risk assessment (NGRA).

**Mentor(s):** The mentor for this opportunity is Joshua Harrill ([harrill.joshua@epa.gov](mailto:harrill.joshua@epa.gov)). If you have questions about the nature of the research please

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**Anticipated Appointment Start Date:** March 1, 2023. 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 five 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.

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](mailto: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 disciplines (e.g. Toxicology, Pharmacology, Cell Biology, Molecular Biology), or be currently pursuing the degree with completion by June 30, 2023. Degree must have been received within the past five years.

Highly self-motivated and innovative individuals with a demonstrated track record of communicating research findings through oral presentations and peer-reviewed publications are encouraged to apply.

Preferred Skills:

- Any combination of experience with assay development, mammalian

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cell cultures, molecular biology techniques, microscopy and/or analysis of high content datasets.

- Preference given to candidates with experience in mammalian cell culture and in vitro toxicology.
- Demonstrated experience communicating research findings through oral presentations and peer-reviewed publications.

**Eligibility Requirements**

- **Citizenship:** U.S. Citizen Only
- **Degree:** Doctoral Degree received within the last 60 months or anticipated to be received by 6/30/2023 11:59:00 PM.
- **Academic Level(s):** Graduate Students or Postdoctoral.
- **Discipline(s):**
  - **Computer, Information, and Data Sciences** ([1](#))
  - **Environmental and Marine Sciences** ([1](#))
  - **Life Health and Medical Sciences** ([48](#))