Opportunity Title: Live Cell Microscopy Studies of the Redox Toxicology of Air Pollutants
Opportunity Reference Code: EPA-ORD-NHEERL-EPHD-2018-03

Organization U.S. Environmental Protection Agency (EPA)

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How to Apply A complete application consists of:

- An application
- Transcripts – 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 references

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

If you have questions, send an email to *EPArpp@orau.org*. Please include the reference code for this opportunity in your email.

Description A postdoctoral research training opportunity is currently available at the U.S. Environmental Protection Agency's (EPA) Office of Research and Development (ORD)/National Health and Environmental Effects Research Laboratory (NHEERL). The appointment will be served with the Environmental Public Health Division (EPHD) located at EPA's Human Studies Facility on the campus of the University of North Carolina in Chapel Hill, North Carolina.

EPHD investigators are investigating mechanisms of oxidative stress that underlie adverse health effects of environmental exposures. Of specific interest is the redox toxicology of ambient air pollutants on human lung cells, including oxidant stress induced by organic and inorganic electrophiles and redox cycling generation of oxidant species, as well as dysregulation of cellular bionergetics. The approaches used include live-cell imaging of cells expressing small-molecule and genetically-encoded fluorescence-based reporters of cellular antioxidants, reactive species and signaling intermediates. Mechanisms are elucidated by knock-down and ectopic or overexpression of gene products involved in adaptive antioxidant defense and inflammatory signaling in human lung cells. The research participant will be closely engaged with the principal investigator, trainees and intramural and extramural collaborators. This research will generate publishable data and communicable scientific findings that will further the trainee's career development.

The research participant will receive training in study design, technique development, and efficient execution of experiments to produce publications of study results. The research participant will benefit from having their research in peer review journals, and have the opportunity to present study findings at national and international conferences. In addition, the research participant may have the opportunity to participate in the following activities:

- Developing imaging methodology for in vitro toxicological studies
- Developing computational models of biological processes and

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toxicological effects
- Conducting statistical analyses
- Identifying and characterizing mechanisms of injury induced by exposure of human lung cells to environmental air pollutants

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. For additional information about this program, please visit https://orise.orau.gov/epa/. This appointment is full time for one year and may be renewed upon recommendation of EPA and contingent on the availability of funds. The participant will receive a monthly stipend based on level of education. Funding may be made available to reimburse the participant's travel expenses to present the results of his/her research at scientific conferences. No funding will be made available to cover travel costs for pre-appointment visits, relocation costs, tuition and fees, or participant's health insurance. The participant must show proof of health and medical insurance. **The participant does not become an EPA employee**.

The mentor for this project will be Dr. James M. Samet (Samet.James@epa.gov). The desired start date is August 20, 2018.

Qualifications

Applicants must have received a doctoral degree in biochemistry, pharmacology, toxicology, biomedical engineering, computational biology, cell biology, pathology, physiology, biology or a closely related field within five years of the desired starting date or must have completed all requirements for the degree prior to the start date. Experience using live-cell fluorescence microscopy and an interest in investigating biochemical and molecular mechanisms of oxidative stress are desirable.

Eligibility Requirements

- **Degree:** Doctoral Degree received within the last 60 month(s).
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (2 👁)
  - **Computer, Information, and Data Sciences** (1 👁)
  - **Engineering** (1 👁)
  - **Life Health and Medical Sciences** (7 👁)