

Opportunity Title: Postdoctoral Opportunity Investigating the Redox Toxicology of Air Pollution

Opportunity Reference Code: EPA-ORD-NHEERL-EPHD-2018-09

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 This research project is with the Environmental Public Health Division (EPHD), located at the U.S. EPA Human Studies Facility on the campus of the University of North Carolina at Chapel Hill. 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 bioenergetics. The approaches used include live-cell imaging of cells expressing small-molecular 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 work closely with the principal investigator, trainees and intramural and extramural collaborators.

The research participant will be assigned to the Clinical Research Branch and will work closely with the principal investigator and other personnel within the laboratory as well as intramural and outside collaborators, with the aim of fostering skills leading to a career as an independent investigator.

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's work may be published in peer review journals. The research participant will have the opportunity to present study findings at national and international conferences.

Additional research training activities may include:

1. Contributing to the development of computational models of biological processes and toxicological effects
2. Conducting statistical analyses
3. 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 to manage the Oak Ridge Institute for Science and Education, was established through an interagency agreement between DOE and EPA. The initial appointment is for one year, but may be renewed upon recommendation of EPA contingent on the availability of funds. The participant will receive a monthly stipend commensurate with educational level and experience. Proof of health insurance is required for participation in this program. The appointment is full-time at EPA in the Chapel Hill, North Carolina, area. Participants do not become employees

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of EPA, DOE or the program administrator, and there are no employment-related benefits.

The mentor for this project is Dr. James M. Samet (Samet.James@epa.gov). The anticipated start date for the appointment is February 1, 2019.

Qualifications Applicants should have a doctoral graduate degree (PhD, ScD), or be within two months of completion of a doctoral graduate degree in biochemistry, pharmacology, toxicology, biomedical engineering, computational biology, cell biology, pathology, physiology, biology or related field. Alternatively, applicants may hold a professional medical degree (MD, DVM, DDS, DO) if substantial research experience (e.g., relevant publications), or academic training in quantitative research can be demonstrated. The ideal candidate will have substantial in biochemistry, cell biology, in vitro toxicology AND/OR using live-cell fluorescence microscopy and have an interest in investigating biochemical and molecular mechanisms of oxidative stress.

Candidates should have a strong background in biochemistry, biological chemistry and/or cell biology. Experience with fluorescence microscopy and live cell microscopy is desirable but not essential. Above all, applicants should be motivated by an interest in contributing to a cutting-edge research effort to improve our understanding of the mechanisms that underlie the human health effects of air pollution exposure, a leading public health problem of global proportions.

Eligibility Requirements

- **Degree:** Doctoral Degree.
- **Discipline(s):**
 - **Computer Sciences** (1 )
 - **Engineering** (1 )
 - **Life Health and Medical Sciences** (7 )
 - **Other Physical Sciences** (2 )
 - **Physics** (1 )