Postdoctoral Fellow in Exposomics

Employment Type: Full time, 1 year with the possibility to extend, start date of Fall 2020

The high-resolution exposomics section of the Frank R. Lautenberg Environmental Health Sciences Laboratory in the Department of Environmental Medicine and Public Health at the Icahn School of Medicine at Mount Sinai seeks talented postdoctoral applicants with expertise in **biostatistics, epidemiology, environmental health, data science and/or systems biology** to join a growing research group that leverages state-of-the-art mass spectrometry platforms to measure the human exposome. These efforts have enabled new methods for significantly advancing the ability to characterize how exposures contribute to disease, and now provide a precision environmental health framework for studying the intersection of environment, biology and disease at the population level. Current research projects are focused on novel untargeted analysis techniques for measuring small molecules in biological tissues and fluids for studies focused on multiple disease processes, development of novel passive samplers, establishing workflows for analyzing untargeted high-resolution mass spectrometry data and measurement of microplastics in human samples. The ideal candidate will have experience coding in R or Python, and be willing to apply data science approaches for solutions in computational mass spectrometry, metabolism and environment-wide association studies (EWAS) in support of exposome research projects. The facility currently houses one LC-Orbitrap (Thermo Q-Exactive HFX) and one GC-Orbitrap (Thermo GC Q-Exactive) for dedicated use, and has plans to strengthen its technology base further.

**Responsibilities may include:**
- Coding and data manipulation in R, Python or equivalent languages
- Optimization and management of bioinformatic workflows for data extraction, processing and annotation of untargeted mass spectrometry data.
- Apply variable selection techniques based upon univariate and multivariate approaches.
- Perform EWAS for disease and adverse health outcomes
- Metabolic pathway and chemical set enrichment analysis.
- Database development for creating a cumulative resource of untargeted exposome studies.
- Preparation of manuscripts for submission to peer-reviewed journals.

**Knowledge/Skills:**
The ideal candidate for the postdoctoral fellow must have a PhD in metabolomics, epidemiology, engineering, biostatistics, data science, bioinformatics or other environmental health related fields. Previous experience with big data analysis or OMICs preferred. Candidates will have hands-on experience working with exposome studies, and have the opportunity to learn fundamentals of untargeted mass spectrometry data acquisition and analysis, pre-processing workflows, EWAS and characterization and interpretation of results. Experience with R or an equivalent programming language is required. They must also have strong organizational and time management skills, with the ability to independently meet project timelines. While preference will be given to scientists with the expertise summarized above, we are willing to train exceptionally motivated individuals with strong analytical and communication skills.

Our laboratory is located on Central Park in New York City in the Icahn School of Medicine and is affiliated with the Mount Sinai Health System, the largest health care provider in New York. The
Department of Environmental Medicine and Public Health has an NIEHS P30 core center with a pilot grant program to which fellows are eligible to apply and a formal mentoring and development program in conjunction with an NICHD-funded T32 training grant. The department also includes the new Institute for Exposomic Research, the first in the world focused on exposomics, as well as three of the NIH funded Human Health Environmental Analysis Resource (HHEAR) Centers, including an untargeted laboratory hub, a targeted laboratory, and the data core. The team science approach in this department provides opportunities to co-author publications with leading collaborators. We offer numerous opportunities for career advancement, including support for grant applications funding career independence, ability to attend workshops on topics related to the exposome and data science, and travel to national and international conferences. Fellows will be offered subsidized housing in Manhattan. **This position offers a substantial compensation package, including an annual salary equivalent to the current NIH stipend rate for fellows plus $18,500 per year, a tailored benefits package, and generous paid time off.** Work related experience will be considered in determining level and salary.

**Application process:**
Interested candidates should email a cover letter including a summary of research interests and experience, as well as their curriculum vitae, to Dr. Douglas Walker (douglas.walker@mssm.edu).