POSTDOCTORAL POSITION OPENINGS

LABORATORY OF PRECISION ENVIRONMENTAL BIOSCIENCES

Three Available Positions:

Position 1
Environmental Epidemiology of Molecular Biomarkers and Epigenetics (Dry Lab)

Position 2
Computational Epigenomics in Environmental Epidemiology (Dry Lab)

Position 3
Next Generation Sequencing Applied to Environmental Health (Crossover Wet/Dry Lab)

The Laboratory of Precision Environmental Biosciences at the Columbia University Mailman School of Public Health invites highly motivated candidates to apply for Postdoctoral Fellow positions. Funding is guaranteed for 2 years. The laboratory currently investigates the molecular mechanisms and biomarkers that reflect reprogramming of health and disease trajectories in response to environmental chemical exposures. The laboratory research activities are specifically focused on epigenetics (DNA methylation, non-coding microRNAs), extracellular vesicle communications, and environmental mitochondriomics. The postdoctoral fellows will work on epidemiology investigations of molecular mechanisms mediating the effects of environmental exposures on human health, emphasizing the statistical designs and analysis of data in large environmental health and/or epidemiology investigations. After our recent relocation from Harvard's T.H. Chan School of Public Health, three positions are available with different roles and required qualifications, as listed below. All positions require excellent written and oral communication skills and a willingness to work as part of a collaborative team. Candidates will be responsible for moving forward several projects within the lab, mentoring graduate students, and maintaining active collaborations with other labs and universities.

Location
Laboratory of Precision Environmental Biosciences, Department of Environmental Health Sciences, Columbia University Mailman School of Public Health, 722 W 168th St, New York, NY

Lab website: https://www.mailman.columbia.edu/research/laboratory-precision-environmental-biosciences

Principal Investigator: Andrea Baccarelli, MD, PhD, Leon Hess Professor of Environmental Health Sciences

Application for All Open Positions
Interested individuals should send a cover letter, curriculum vitae, two sample publications, and the names/phone numbers of three people who could provide letters of reference by email to Ms. Kasey Brennan, Assistant Director, Laboratory of Precision Environmental Biosciences: kasey.brennan@columbia.edu. Applicants must specify for which position they are applying. The Columbia University Mailman School of Public Health is an Equal Opportunity/Affirmative Action Employer. Women and minorities are encouraged to apply.

Role and Required Qualifications for Position 1 – Environmental Epidemiology of Molecular Biomarkers and Epigenetics (Dry Lab)

Role and Active Projects: The Postdoctoral Fellow will lead epidemiology projects utilizing data generated by the lab to investigate molecular mechanisms and biomarkers activated by environmental exposures. He/she may also conduct epidemiological analysis on the direct effects of environmental exposures on human health outcomes.

Examples of active projects include the following investigations:
- Molecular and Epigenetic Mitochondriomics of Air Particles, Lead and Cognition
- Circulating microRNAs in Extracellular Vesicles, Air Particulate Pollution, and Lung Function
- Phthalates and Stress: Mechanisms and Interactions for Childhood Obesity
- Flame Retardants, Thyroid Function, and Psychomotor Skills in Children

Team: The fellow will work closely with Dr. Baccarelli and will be part of an interdisciplinary team of environmental epidemiologists, environmental health scientists, and wet-lab epigeneticists/molecular biologists. The fellow will have access to the resources and infrastructure available at the Mailman School of Public Health, including the Laboratory of Precision Environmental Biosciences, the NIEHS Center for Environmental Health in Northern Manhattan, and collaborations with the Department of Epidemiology and the Department of Biostatistics.

Qualifications: Applicants should possess a Ph.D. in Environmental Health, or alternatively, in other relevant disciplines with relevant previous work and interest in environmental epidemiology. Strong quantitative skills, practical experience working with epidemiology data, familiarity with the SAS and/or R statistical software packages and excellent oral communication and scientific writing are also necessary. Experience in molecular epidemiology, biomarker analyses, and/or epigenetic analyses is desirable.

Role and Required Qualifications for Position 2 – Computational Epigenomics in Environmental Epidemiology (Dry Lab)

Role and Active Projects: The Postdoctoral Fellow will lead epidemiology and computational projects emphasizing the analysis of epigenome-wide DNA methylation data or other genome-scale epigenomic data in large environmental health investigations. The analysis of Illumina BeadChip methylation data will be strongly emphasized. The fellow's long-term research objectives will be unveiling the epigenomic mechanisms linking environmental exposures to long term effects on human health

Examples of active projects include the following investigations:
- Molecular and Epigenetic Mitochondriomics of Air Particles, Lead and Cognition
- Epigenetic Mechanisms of Particulate-Matter mediated Risk of Cardiovascular Disease
- Circulating microRNAs in Extracellular Vesicles, Air Particulate Pollution, and Lung Function
- Epigenome wide analyses of DNA methylation in the project "Phthalates and Stress: Mechanisms and Interactions for Childhood Obesity"
- Methylomics of Prenatal GDM: Natural History & Lifestyle Intervention in Children

Team: The fellow will work closely with Dr. Baccarelli and will be part of an interdisciplinary team of environmental epidemiologists, epigeneticists, and computational biologists dedicated to environmental health investigations. The fellow will have access to the resources and infrastructure available at the Mailman School of Public Health, including the Laboratory of Precision Environmental Biosciences, the NIEHS Center for Environmental Health in Northern Manhattan, and collaborations with the Department of Epidemiology and the Department of Biostatistics.

Qualifications: Applicants should possess a Ph.D. in Environmental Health, or alternatively, in other relevant disciplines, such as Epidemiology, Statistics/Biostatistics, Computational Biology, or Bioinformatics, with relevant previous work and interest in environmental health. Strong quantitative skills, practical experience working with epidemiology data, familiarity with the R statistical software packages and excellent oral communication and scientific writing are also necessary. Experience with Illumina BeadChip methylation data (450K or EPIC) is strongly preferred.

Role and Required Qualifications for Position 3 – Next Generation Sequencing Applied to Environmental Health (Crossover Wet/Dry Lab)

Role and Active Projects: The Postdoctoral Fellow will lead molecular projects emphasizing the development and applications of novel epigenetics tools and methods to human environmental health studies. In particular, the Fellow will lead projects utilizing next generation sequencing methods to uncover genetic and epigenetic variations linked to environmental exposures. The fellow's long-term research objectives will be investigating novel biomarkers related to epigenetics, mitochondrial DNA and other mitochondrial markers, and extracellular RNA communication.

Example of active projects include the following investigations:
- Molecular and Epigenetic Mitochondriomics of Air Particles, Lead and Cognition
- Circulating microRNAs in Extracellular Vesicles, Air Particulate Pollution, and Lung Function
- Phthalates and Stress: Mechanisms and Interactions for Childhood Obesity
- Methylomics of Prenatal GDM: Natural History & Lifestyle Intervention in Children

Team: The fellow will work closely with Dr. Baccarelli and will be part of an interdisciplinary team of epigeneticists, molecular biologists, and wet lab scientists working closely with environmental health scientists and epidemiologists. The fellow will have access to the resources and infrastructure available at the Mailman School of Public Health, including the Laboratory of Precision Environmental Biosciences, the NIEHS Center for Environmental Health in Northern Manhattan, and to collaborations with the Department of Epidemiology, the Department of Biostatistics and the Columbia University Medical Center.

Qualifications: Applicants should possess a Ph.D. in disciplines relevant to the scope of the position as well previous work and interest in environmental health. Extensive experience with DNA and RNA handling is essential, as is experience with next generation sequencing methods, including library preparation and technical methods. Experience with real-time PCR and related assay technologies is desirable. Excellent oral communication and scientific writing are also necessary.