Research Assistant, Junior Biostatistician for Cutting-Edge Research on Neuroimmune Disorders Using a Machine Learning Approach

Duration: 1 Year Contract with the possibility of extension

Salary: Commensurate with experience, including fringe and indirect costs

Latest Start Date: June 1, 2024

Reports To: Dr. Breithaupt, Principal Investigator

About the Project:
Neuroimmune disorders, including PANDAS (Pediatric Autoimmune Neuropsychiatric Disorders Associated with Streptococcal Infections) and PANS (Pediatric Acute-onset Neuropsychiatric Syndrome), are proposed diagnoses illustrating a clinical picture of acute onset obsessive compulsive disorder (OCD) or restrictive eating with underlying immune dysregulation driving symptom onset. No biomarkers have been identified for PANS/PANDAS, leaving families and clinicians relying on symptom presentations that overlap with traditional OCD and restrictive eating disorders, which are more commonly diagnosed and may overshadowing an underlying PANS/PANDAS diagnosis. As a result, novel treatments designed to target the potential behavioral symptom pathogenesis. (e.g., inflammation and/or infection) are not even explored or developed. As part of this project, the individual will work with the study team members to identify potential disease specific biomarkers for PANS/PANDAS using the largest and most comprehensive dataset of patients of PANS/PANDAS symptoms.

About the team:
The individual will join the Multidisciplinary Eating Disorders Research Collaborative (MEDRC) at MassGeneral Brigham (MGB). The team is comprised of clinical psychologists, psychiatrists, cognitive neuroscientists, neurobiologists, radiologists, endocrinologists, pediatricians, and computer scientists, making this an idea fit for individuals seeking a collaborative and multidisciplinary environment.

Responsibilities:
Please note, the functions below are representative of major duties that are typically associated with these positions. Specific responsibilities may vary based upon departmental needs. Similarly, not all duties that have been outlined will be assigned to each position.
- Assist in the design and analysis of studies that explore inflammation-associated proteins in OCD and PANS/PANDAS.
- Creating and maintaining reproducible visualizations and summary statistics of proteomic data.
- Work closely with the research team to develop models for person-specific inflammation protein expression levels.

- Apply machine learning techniques to analyze complex datasets for pattern identification.
- Contribute to the development of diagnostic tools and targeted treatment approaches based on protein expression levels.
- Prepare data for publication and contribute to scientific papers for peer-reviewed journals.
- Stay up-to-date with statistical methods and machine learning approaches relevant to biomedical research.
- Maintain and update Github repositories.
- Preparing detailed agendas and data updates for meetings.
- Training new staff members in proteomic analyses.

Qualifications:
- Master's degree in biostatistics, statistics, or a related field.
- Proficiency in statistical software (e.g., R, SAS, Stata) and machine learning platforms.
- Experience with data management and analysis in a research environment.
- Familiarity with proteomics data analysis is highly desirable.
- Strong quantitative skills and experience in applying statistical methods to biological data.
- Excellent communication skills for collaboration with a multidisciplinary research team.
- Ability to work independently and manage multiple tasks and deadlines.

Application Requirements:
Please send the following to Dr. Lauren Breithaupt, lbreithauptlangston@mgh.harvard.edu
- Cover letter expressing interest and fit for the role.
- Curriculum Vitae or resume.
- Contact information for two professional references.