THE SAHLGRENSKA ACADEMY
INSTITUE OF NEUROSCIENCE AND PHYSIOLOGY

Department of physiology
Administrator: Amilia Bliding
Telephone No: 031-7863878
E-mail address: amilia.bliding@gu.se

Announcement - scholarship at undergraduate/advanced level

The Department of Physiology, Institute of Neuroscience and Physiology, hereby announces a vacant scholarship at undergraduate/advanced level in The impact of perinatal inflammation on later-life autism.

Training plan

Background: Childhood neuropsychiatric disorders, including autism spectrum disorder (ASD), are rapidly increasing worldwide and represent a major public health concern. ASD arises from complex interactions between genetic risk factors and environmental influences that together alter brain development and neural circuit function. Among these environmental factors, perinatal inflammation has emerged as a key contributor. Early-life inflammatory events such as maternal or neonatal infection can disrupt neurodevelopmental trajectories and increase vulnerability to ASD. Although the link between inflammation and autism is well supported, the specific biological pathways and molecular signatures that mediate this risk remain poorly understood. This gap indicates the need for integrative mechanistic studies combining behavioral, neuroanatomical, and high-dimensional molecular analyses.

Purpose: This project aims to investigate how perinatal inflammation shapes long-term neurodevelopmental outcomes relevant to autism. A specific focus will be placed on identifying molecular and cellular signatures derived from omics datasets that link early-life immune activation to alterations in hippocampal synaptic plasticity and ASD-like behaviors.

Method: In this project, C57BL/6 male mouse pups will receive inflammatory inducer or saline at postnatal day 5. Behavioral testing at P45±5 will be done. Following behavior, hippocampal tissues will be collected molecular profiling (omics data generated in the lab, e.g., transcriptomics, metabolomics, or proteomics).

The student will primarily contribute to bioinformatic and statistical analysis of these high-dimensional datasets such as quality control, differential expression, pathway enrichment, network analysis, and integration of molecular data with behavioral and morphological phenotypes.

Learning outcome: In this project, the student will gain hands-on experience with: Analysis and interpretation of omics datasets (e.g., RNA-seq, metabolomics, proteomics), integration of molecular profiles with behavioral and neuroanatomical data, basic neurodevelopmental behavioral assessment and hypothesis generation around molecular mechanisms linking inflammation and ASD. This training position comes with a stipend, which does not represent a salary, and the activities performed are not regarded as work.

Period
2026-02-01 to 2026-05-31

Financing
1 payment of 52000 SEK. A total of 52000 SEK for the whole period.

If you require any further information, please contact Carina Mallard, carina.mallard@gu.se, supervisor.

Application
To apply please fill out the form "Scholarship application" and send it to Carina Mallard, carina.mallard@gu.se, Supervisor

Please attach a copy of:

CV
Letter of motivation

Closing date is 2025-12-23.