



THE SAHLGRENKA ACADEMY
INSTITUTE OF NEUROSCIENCE AND PHYSIOLOGY

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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 Gastroenterology I.

Training Plan

Subject: Gastroenterology

Background: During recent years the role of goblet cells (GC) in regulation of intestinal immunity has obtained increased attention via the discovery that GCs sample luminal antigens and deliver them to the immune system. We have shown that the antigen sampling by GCs is linked to mucus secretion as both functions are regulated by acetyl choline. Activation of muscarinic receptors results in elevated levels of $[Ca^{2+}]_i$ that triggers 1) anion secretion, 2) mucin granule exocytosis and 3) endocytic retrieval of secretory granule membranes and uptake of luminal antigens. Based on these observations we propose that the ion transport function of the epithelium coordinates antigen uptake by regulating mucin granule exocytosis.

Purpose: In this project we will evaluate the role of epithelial ion transport in regulating antigen uptake by goblet cells.

Method: We will explore antigen uptake by GCs using Ussing chambers and immunohistochemistry. This project involves handling of live animals. Collection of tissue specimens and preparation of tissue samples for immunohistochemistry.

Time plan: The first month will be dedicated to training the student in the respective methods and data analysis. During the remaining time the student is expected to work independently.

Learning outcome: Following completion of the project the student will have obtained practical and theoretical training in gastroenterology with a focus on goblet cells and epithelial transport. The practical experience includes handling of live animals, Ussing chambers, injections of fluorescently labeled antigens, immunohistochemistry and fluorescence microscopy. The theoretical aspects focus on goblet cell biology and goblet cell immune cell interactions. This training position comes with a stipend, that does not represent a salary and the activities performed are not regarded as work.

Period

2024-12-20 to 2025-02-20

Financing

1 payments of 26.000 SEK. A total of 26.000 SEK for the whole period

If you require any further information, please contact Jenny Gustafsson,
jenny.gustafsson@gu.se, supervisor.

Application

To apply please fill out the form “Scholarship application” and send it to Jenny Gustafsson,
jenny.gustafsson@gu.se, supervisor.

Please attach a copy of:

CV

Letter of motivation

Registration certificate

Closing date is 2024-12-17.