**Open PhD position at the Institute of Cell Biology, Medical University of Innsbruck, Austria.**

We offer 1 fully funded PhD position with immediate effect located at the Institute of Cell Biology, Biocenter, Medical University of Innsbruck and supervised by **Ass.-Prof. Georg-Friedrich Vogel** (Cell Biology, Paediatrics I). The project is embedded within the PhD program Molecular and Cellular Basis of Diseases (MCBD) at the Medical University of Innsbruck, Austria. This interdisciplinary PhD program addresses the molecular control of metabolism & inflammation and connect basic life science and computational biology with medicine.

To read more about the program and the requirements, please use the following link: https://phd-cbdiseases.i-med.ac.at/

**Project: The role of TM9SF4 and SNAP29 in epithelial polarity**
In a CRISPR/Cas9 knock out (KO) screen on apical trafficking in epithelial cells, our group has identified two candidate genes involved in the proper establishement of epithelial polarity and apical delivery of cargo proteins: transmembrane 9 superfamily 4 (TM9SF4) and synaptosomal-associated protein 29 (SNAP29). TM9SF4 was shown to interact with a subunit of the (H+)-vacuolar-ATPase (V-ATPase). This suggest that TM9SF4 is relevant pH-maintenance in the secretory and endo-lysosomal system, thus cellular pH-homeostasis. SNAP29 is a soluble N-ethylmaleimide-sensitive factor attachment protein receptor (SNARE). It is involved in a broad range of trafficking and non-trafficking associated cellular processes. Amongst others, it is associated with cargo transport through the Golgi apparatus towards the apical plasma membrane.

However, little to nothing is known about the role of TM9SF4 and pH-levels of secretory organelles in the establishment and maintenance of epithelial polarity. Loss of SNAP29 in the model organism Caenorhabditis elegans results in similar epithelial defects as loss of V-ATPase subunits which suggests a common pathway.

This project aims to understand the interplay of TM9SF4 and SNAP29 in the establishment and maintenance of proper epithelial polarity, pH-regulation of secretory organelles and correct apical trafficking of cargo proteins. Therefore, epithelial cell models will be used, such as 3D MDCK cyst cultures, to study the role of TM9SF4 and SNAP29 in epithelial polarity in spatial and temporal detail.

**Contact:**
georg.vogel@i-med.ac.at

**Job Category:** PhD