DANDRITE
Danish Research Institute of Translational Neuroscience
Nordic EMBL Partnership for Molecular Medicine

AARHUS UNIVERSITY

# Mini-symposium announcement

## Friday 14 October 2022

**11.00 – 12.00**

**Venue:** MBG Auditorium (1871-120)
Dept. Molecular Biology and Genetics, Aarhus University

**From 11.00-11.30**

### *"Potassium transporters and channels in bacterial survival"*

**Prof. Dr. Inga Hänelt**
Membrane Biochemistry
Institute of Biochemistry, Biocenter
Goethe-University
Frankfurt

Potassium ion homeostasis is essential for bacterial survival, playing roles in osmoregulation, pH homeostasis, regulation of protein synthesis, enzyme activation, membrane potential adjustment and electrical signaling. I will discuss the roles of the three major bacterial potassium uptake systems, the ion channels TrkAH and KtrAB, the proton-coupled potassium transporter KUP and the potassium pump KdpFABC, based on their molecular structure and function. In particular, I will highlight the regulation of the individual systems by phospholipids and nucleotides, nucleotide second messengers and phosphorylation, which links back to bacterial physiology.

**From 11.30-12.00**

### *"Evolution of $Na^+/K^+$ - and plasma membrane $H^+$-ATPases – which pump came first? (and where did P4 ATPases come from?)"*

**Prof. Michael Palmgren**
Department of Plant and Environmental Sciences
Section for Transport Biology
University of Copenhagen
Denmark

In animals, the plasma membrane is energized by the $Na^+/K^+$-ATPase. In plants, plasma membrane $H^+$-ATPases energize the membrane but here the energy currency is $H^+$. In my presentation, I will try to trace back the evolution of these pumps and discuss which pump came first. Finally, I will speculate about the origin of P4 ATPases.

**Hosted by:** Prof. Poul Nissen