

DANDRITE Topical Seminar

Friday 25 June 2021
11.30 – 12.00

Online via Zoom

Zoom link is available upon request to karenb@mbg.au.dk



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Elevating the molecular basis for sodium/proton exchange

The regulation of intracellular pH is a fundamental process in most living organisms. Almost all cells have transport proteins, known as NHEs, that couple the movement of protons against sodium ions to fine-tune the cells internal pH, sodium levels and cell volume. The dysfunction of NHEs has been linked to many diseases such as cancer, hypertension, heart failure, diabetes, and epilepsy. Despite their fundamental importance to cell homeostasis and human physiology, structural information for the mammalian NHEs was lacking. Here, I will present the cryogenic electron microscopy structure of NHE isoform 9 (SLC9A9) from *Equus caballus* at 3.2 Å resolution, an endosomal isoform highly expressed in the brain and associated with autism spectrum (ASD) and attention deficit hyperactivity (ADHD) disorders. I will outline the conserved architecture of the NHE ion-binding site, their elevator-like structural transitions, and the role of phosphoinositide lipids to promote homodimerization that, together, have important physiological ramifications.

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Everyone interested is welcome to join the seminar.

Host: Group leader Prof. Poul Nissen,
DANDRITE, Dept. Molecular Biology and Genetics, Aarhus University