

DANDRITE Topical Seminar

Monday 6 November 2017
at 13.00 – 13.45

Aarhus University, building 3140, room 114 (Meeting room at MBG)

Povilas Uzdevinys



Postdoctoral Researcher,
Tampere University of Technology,
Finland

Seminar on “Establishing the molecular mechanism of sodium/proton exchangers”

Sodium/proton exchangers are ubiquitous secondary active transporters that can be found in all kingdoms of life. These proteins facilitate the transport of protons in exchange for sodium ions to help regulate internal pH, sodium levels, and cell volume. Na⁺/H⁺ exchangers belong to the SLC9 family and are involved in many physiological processes including cell proliferation, cell migration and vesicle trafficking. Dysfunction of these proteins has been linked to physiological disorders, such as hypertension, heart failure, epilepsy and diabetes.

We are studying bacterial Na⁺/H⁺ antiporter NapA from *Thermus thermophilus* to get the better understanding of the molecular mechanism behind the ion transport. We managed to obtain the first atomic structures of the same Na⁺/H⁺ exchanger (NapA) in two different conformations. We show that a transmembrane embedded lysine residue is essential for carrying out electrogenic transport. Moreover, we isolated and recorded the first kinetic data of a mammalian Na⁺/H⁺ exchanger (NHA2) in an isolated liposome reconstitution system.

Host: Group Leader Poul Nissen, DANDRITE, Dept. of Molecular Biology and Genetics, Aarhus University