Announcement of seminar

A New Era of SERCA Regulation: Phospholamban, Sarcolipin, and the "Regulins"

by

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Time: **Monday November 27, 14.15–15.00**

Place: **Fysiologisk Aud. A, Ole Worms Allé (Building 1162, room 013)**

Abstract:

Of the P-type ATPases, the sodium pump (Na^+,K^+-ATPase) is the most extensively regulated by small auxiliary subunits. There are at least seven regulatory subunits in mammals that act as tissue-specific regulators of the sodium pump. By comparison, the complexity of SERCA isoforms and regulatory subunits appeared to be much more limited (3 α isoforms and 2 regulatory subunits). Historically, phospholamban (PLN) and sarcolipin (SLN) were the only known regulatory subunits of SERCA. PLN is a 52 amino acid integral membrane protein found in cardiac and smooth muscle, and SLN is a homologous 31 amino acid integral membrane protein found in skeletal and atrial muscle. The canonical model for SERCA regulation by PLN and SLN involved a reversible one-to-one association that lowers the apparent calcium affinity of SERCA, and this has classically been termed SERCA inhibition. The inhibition is maximal at low physiological calcium concentrations (~0.1 μM cytosolic calcium) and reversed at higher calcium concentrations (>1 μM). However, this simplistic picture of SERCA regulation has recently evolved to include new regulatory peptides and novel functions for PLN and SLN. Structural and functional comparisons of PLN and SLN will be presented, as well as insights into the new SERCA regulatory subunits.