



Seminar



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Solving mysteries shrouding the ubiquitous acid-activated Cl channel ASOR

A mysterious, acid- and depolarization activated Cl current had been described in many cell types for about 20 years, but the molecular identity and physiological function of the underlying channel (ASOR) had remained unclear. Using a sophisticated functional assay in a genome-wide siRNA screen, we showed that it is composed of TMEM206 proteins that display three transmembrane domains.

Mutagenesis identified pore-lining residues which were later confirmed by cryo-EM structures that showed that ASOR is a TMEM206 trimer. We identified several residues involved in sensing extracellular pH and showed that ASOR is not only present at the plasma membrane, but prominently in endocytic compartments.

Using M-CSF induced micropinocytosis of macrophages, we found that ASOR, together with TPC cation channels and acid-transporters, is crucial for the resolution of these large vesicles. Based on these data and mathematical modeling, we propose an integrated model for electrolyte-driven osmotic vesicle shrinkage which is a prerequisite for downstream scission of small vesicles.

Time: Monday, 22 May 2023, 16:30h
Location: Pathologie Universitätsklinikum Erlangen
Krankenhausstr. 8 - 10
Unterer Hörsaal, Raum 01.150
and Zoom

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