



Esplanade Room 158: Monday, February 23

10:30 AM – 12:00 PM

Nanion Technologies

Electrophysiological Tools for Advancing Ion Channel and Transporter Drug Discovery

Speaker: *Tim Strassmaier, Director of Scientific Operations, Nanion Technologies*

For over 2 decades, Nanion Technologies has been providing diverse solutions for electrophysiologists worldwide. We aim to implement innovative technologies for ion channel research, automated patch clamp (APC) electrophysiology, cell viability and contractility monitoring, and electrogenic transporter studies, across various throughput formats. Our symposium will start with an introduction by Tim Strassmaier who will describe the latest advances in Nanion's assays and product portfolio, followed by our speakers, whose work focuses on ion channel and transporter research.

Ion Channels in Drug Discovery: Current Landscape and Future Directions

Speaker: *Marc Rogers, Ion Channel Drug Discovery Consultant, Albion Drug Discovery Services Ltd*

2025 was a stand-out year for ion channel drug approvals, with two novel ligands making it to market as well as a repurposed drug approved for rare disease. The momentum continues into 2026 with a large number of preclinical and clinical programs using small molecule, gene therapy, antibody and protein degradation modalities to modulate ion channel expression and function across a wide range of common and rare disease indications. Alongside popular targets such as Nav1.8, Kv7.x, GABA-A and GluR channels and receptors, commercial and academic drug discovery groups are using *in vitro* and *in silico* screening methods to develop novel ligands for a wide range of new transmembrane transport proteins in organelles (TMEM175, TRPML1, TPC, RyR), on the plasma membrane (K2P, KNa, Kv3.x, ASIC, SLCs, KCC2) and in cilia (TRPP1/2).

Introducing the Next Generation of Automated Patch Clamp for Ion Channel Drug Discovery

Speaker: *Alison Obergrussberger, Director of Scientific Sales and Customer Engagement, Nanion Technologies*

Twenty years ago, the Patchliner set a new benchmark as a fully automated patch clamp system capable of recording from up to eight cells simultaneously. Since then, it has become a trusted workhorse across academia and industry - supporting everything from routine cardiac safety assays to complex biophysical investigations of voltage-gated ion channels and heat activation of TRP channels. Now, two decades later, the Patchliner is undergoing a major transformation. With significant improvements in assay versatility, hardware design, and software performance, the next-generation Patchliner sets a new standard for precision, efficiency, and ease of use in automated electrophysiology.

Interrogating Transporter Oligomerization and Function Using SURFE2R N1

Speaker: *Janice Robertson, Associate Professor, Department of Biochemistry and Molecular Biophysics, Washington University School of Medicine, St. Louis*

Transporters often assemble as oligomers even when each subunit appears to contain its own transport pathway. This raises the question of whether oligomerization is a mechanism for modulating transport activity. Here, we investigate this by studying two homodimer systems: the CLC-ec1 chloride/proton antiporter and the AdiC arginine/agmatine antiporter. Monomer-dimer populations of fluorophore conjugated proteins are examined in membranes using TIRF microscopy and single-molecule photobleaching. In parallel, transport is assessed using the SURFE²R N1 which provides a versatile functional assay to compare different transporter types and substrates under a wide variety of environmental conditions.