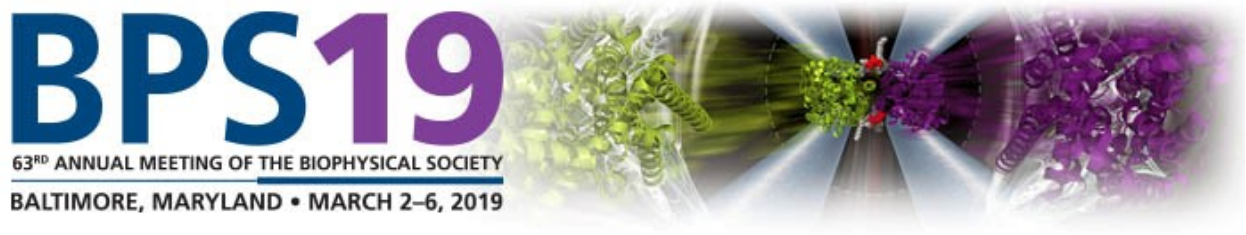

Monday, March 4
12:30 pm – 2:00 pm
Room 301
Nanion Technologies

ION CHANNELS AND TRANSPORTERS IN THE SPOTLIGHT

Nanion Technologies is the leading solution provider for electrophysiologists since 2002. If you are studying ion channels and electrogenic transporters, our chip- and plate-based devices are well suited to advance your research and screening projects. In our portfolio, you will find instrumentation for automated patch clamp, bilayer recordings, SSM-based electrophysiology, impedance and extracellular field recordings, covering the needs for low, medium and high throughput assays. Our symposium will start with an introduction by Dr. Niels Fertig (CEO, Nanion) as a guide through the overall capabilities of Nanion´s technology portfolio. In continuation, we will welcome our speakers, Dr. Jean-Francois Rolland (Axxam), Prof. Dr. David J. Adams (University of Wollongong) and Prof. Dr. Randy Stockbridge (University of Michigan). Dr. Andrea Brüggemann (CSO, Nanion) will close the symposium.

As a part of our symposium, Dr. Rolland will focus on his recent work on assay development in ion channel drug discovery, using the high throughput automated patch clamp screening platform, the SyncroPatch 384/768PE. Application areas of this powerful system, recording from up to 768 cells simultaneously, range from high throughput screening (HTS), cardiac safety assessment and efficacy screening, to the analysis of ion channel mutations. The SyncroPatch 384/768PE supports voltage- and current clamp recordings, temperature control, and minimal cell usage. In addition to the use of stably transfected cell lines, more challenging cell assays including stem cell-derived cells, transiently transfected cells or primary cells can be used successfully. In this presentation Dr. Rolland will also discuss the highly promising approach of using optogenetics combined with automated patch clamp technology in HTS. This method, using light to modulate molecular events in a targeted manner in living cells, could lead to cheaper, faster and highly reliable assays, suitable for running the early steps of ion channels' drug discovery programs, especially when combined to automated electrophysiology. Among others, data obtained from Axxam´s bPAC-HCN2 cell line that was successfully assayed on SyncroPatch 384PE, will be presented.

Next presentation focusing on the SyncroPatch 384PE will be done by Prof. Adams. His research focuses on membrane receptors and ion channels and he is internationally recognized for his contributions to membrane physiology, in particular that of ion channel function and modulation using electrophysiological recording techniques. During his career, he has identified novel peptides (conotoxins) obtained from the venom of cone snails as probes for ion channel structure and function. Focus of his research is investigation of conotoxins that selectively target the voltage-gated sodium and calcium channels, nicotinic acetylcholine receptors, and G protein-coupled receptor modulation of calcium channels. Here, he will present some of his results on conotoxin research using the SyncroPatch 384PE.

In continuation, Prof. Stockbridge will be focused on electrogenic transporter assay technology, the SURFE^{2}R. The SURFE^{2}R N1 (single channel) and SURFE^{2}R 96SE (96 channels) technologies enable label-free real time measurements of electrogenic transporter protein activity. Employing SSM (solid supported membrane)-based electrophysiology, the SURFE^{2}R instruments compensate for the low turnover rate of

these proteins by measurement of up to 10^9 transporters in parallel. Prof. Stockbridge, as an expert in measuring membrane transport function, will present her recent data obtained on the SURFE^{2}R N1 instrument. She has undertaken a comparative mechanistic analysis to understand how drug export function evolved in the SMR (small multidrug resistance) exporters family. This involved screening panels of potential substrates (drugs and other compounds) to understand how substrate specificity differs among the drug exporters, guanidinium exporters, and various evolutionary intermediates.

The Nanion team is excited to meet you at our symposium. Join us to learn more about how our “smart tools for electrophysiologists” can help take your research to the next level!

Speakers

Jean-Francois Rolland, Head of Electrophysiology, Axxam
David Adams, CEO/Executive Director (IHMRI), University of Wollongong, Australia
Randy Stockbridge, Assistant Professor, University of Michigan