



## Monday February 17th, 2020, 12:30 – 2:00 P.M. Room 33C

### Beyond Ion Channels and Transporters: Snapshots of the state-of-the-art solutions

For almost two decades Nanion Technologies provides diverse solutions for electrophysiologists worldwide. We aim to successfully implement innovative technologies in the fields of ion channel automated electrophysiology, monitoring of cell viability and contraction, as well as electrogenic transporters, with our chip- and plate-based devices. Covering the needs for low, medium and high throughput assays our portfolio is well suited to advance research and screening projects. During this year's symposium, five snapshots of successful wide-ranging applications, assays and emerging technologies from our product portfolio will be presented. 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.

Our first snapshot, presented by Prof. Dr. Jamie Vandenberg (Victor Chang Cardiac Research Institute) will be focusing on the high throughput automated patch clamp (APC) screening of missense variants in KCNH2 mutations, a well-established cause of sudden cardiac death, using the SyncroPatch 384PE. Prof. Vandenberg will present a high throughput functional assay his group developed in order to differentiate between benign and pathogenic variants in KCNH2 gene. Dr. Marc Rogers (Mettrion Biosciences) will continue with a snapshot focusing on validation of a CardioExcyte 96 impedance-based phenotypic assay, that is able to reproduce the chronic effects of a range of clinical drugs that affect human iPSC cardiomyocyte contractility and viability by multiple and diverse mechanisms, including ion channel and ionic pump inhibition, DNA intercalation, proteasome and tyrosine kinase inhibition, and myosin disruption. One of the newest Nanion's releases, the FLEXcyte 96, will be highlighted in the snapshot presented by Dr. Matthias Gossmann (InnoVitro). Dr Gossmann will introduce the important impact this technology has on cardiac research, as it offers the potential to scale-up mechanical testing of cardiac contractile behavior, maturation and drug screening towards medium-throughput analysed under true physiological conditions.

Moving from cardiac physiology, Nathan Thomas (University of Wisconsin-Madison) will introduce a new application of SSM-based electrophysiology, in the field of ion coupled transporters. With a novel approach the transporter stoichiometry is investigated via reversal potential determination. During his snapshot, SURFE2R N1 data obtained on transporters from the small multidrug resistance (SMR) family, with the goal of providing a better understanding of underlying transport mechanisms, will be presented.

Finally, Dr. Stephen Hess (Evotec) will introduce the use of APC platforms to support ion channel drug discovery, focusing on the Nav1.1 channels, which positive modulators could be useful in treating cognitive disorders, epilepsy, and neurodegenerative diseases. To find novel positive modulators of NaV1.1 channels. Dr. Hess screened over 150K small molecules using the SyncroPatch 384PE and found confirmed hits which could serve as excellent starting points for further MedChem optimization towards potential therapeutics.

The Nanion team is delighted to welcome you to our lunch symposium!

#### Speakers:

**Prof. Dr. Jamie Vandenberg**, co-deputy director and head of cardiac electrophysiology at The Victor Chang Cardiac Research Institute, Australia

**Dr. Marc Rogers**, Director, CSO at Mettrion Biosciences, UK

**Dr. Matthias Gossmann**, Innovitro (FLX), co-founder and CEO at Innovitro, Germany

**Nathan Thomas**, PhD student at University of Wisconsin-Madison, USA

**Dr. Stephen D. Hess**, Research leader, Ion Channels at Evotec, Germany