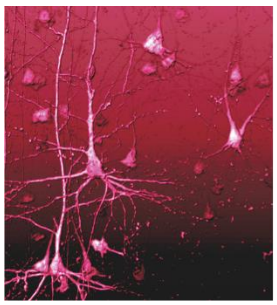

# 2nd Channelopathy Meeting Tübingen

## Genetic epilepsies and other neuronal ion channel disorders: Mechanisms and therapeutic perspectives

4th-6th October 2023, Tübingen, Germany

**Preliminary Program**

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| **Wednesday, 4 October 2023** | |
| 7:30 pm | Get-Together Schloss Hohentübingen |
| **Thursday, 5 October 2023** | |
| **8:30 am** | Introduction: Holger Lerche (Tübingen) |
| **8:40-11:40 am** | **Session 1: Sodium channelopathies**<br>Chair: Thomas Wuttke & Moran Rubinstein |
| 8:40 | Andreas Brunklaus (Glasgow): Emerging phenotypes in sodium channelopathies - the role of functional prediction and therapeutic advances |
| 9:00 | Evgeniia Rusina (Nice): A homeostatic response boosted as therapeutic approach in *Scn1a*$^{+/-}$ Dravet syndrome mice |
| 9:20 | Nikolas Layer (Tübingen): Early electrophysiological and transcriptomic alterations drive epileptogenesis in Dravet syndrome |
| 9:35 | Elena Gardella (Dianalund): *SCN8A*: Clinical complexity and natural history study |
| 9:55 | Heinz Beck (Bonn): Targeting aberrant dendritic integration to treat cognitive comorbidities of epilepsy |
| 10:15, virtual | Sanjay Sisodiya (London): Genetic epilepsies: complexities to come - *SCN1A* as an example |
| **10:35-11:05 am** | Coffee Break |
| 11:05 | Angelika Lampert (Aachen): Precision Therapy in sodium channel related neuropathic pain |
| 11:25 | JP Johnson (Xenon, Burnaby): A Selective $Na_V1.1$ Potentiator Enhances Interneuron Excitability to Normalize Motor Performance in a Dravet Syndrome Mouse Model |
| **11:45 am - 1:00 pm** | **Session 2: Potassium channelopathies**<br>Chair: Gabriele Lignani & Stephan Lauxmann |
| 11:45 | Jennifer Kearney (Chicago): Modeling *KCNB1*-associated developmental and epileptic encephalopathy in mice |
| 12:05 | Peter Müller (Tübingen): Transcriptomic insights into epileptogenesis and compensatory changes in a *KCNA2* loss-of-function mouse model |
| 12:20 | Konstantin Khodosevich (Copenhagen): Understanding mechanisms of epileptogenesis using single cell omics |
| 12:40, virtual | Ann Poduri (Boston): Modeling potassium channelopathies in zebrafish |
| **1:00-2:00 pm** | Lunch Break |
| **2:00-3:50 pm** | **Session 3: HCN, calcium and ligand-gated channelopathies**<br>Chair: Dirk Isbrandt & Ulrike Hedrich-Klimosch |
| 2:00 | Bina Santoro (New York): Molecule, cell, organism: multi-level analysis of a sick ion channel |
| 2:20 | Christopher Reid (Parkville): A small-molecule precision medicine for *HCN1* DEE |
| 2:40 | Stephan Marguet (Cologne): HCN/h channel modulation of excitation/inhibition balance in the MEC is crucial for cortico-hippocampal information flow and intrahippocampal dynamics |
| 3:00 | Jörg Striessnig (Innsbruck): *CACNA1D* L-type calcium channelopathies in neurodevelopmental disorders: opportunities for drug repurposing |

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| 3:20 | Philip Ahring (Sydney)/Rikke S. Møller (Dianalund): Pathogenic *GABRA3* variants lead to dominant or recessive X-linked disorders depending on functional outcomes |
| **3:50-5:00 pm** | **Poster session (with coffee)** |
| 5:00-7:00 | **Session 4: Molecular therapeutic board (case reports: 5-10 min including discussion)**<br>Chair: Holger Lerche & Michael Alber (Tübingen) |
| | Stephan Lauxmann/Michael Alber |
| | Robert Lauerer-Braun |
| | Rikke Steensbjerre Møller |
| | **Further cases from the audience** |
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| **8:00 pm** | **Dinner Restaurant „Liquid“** |

| **Friday, 6 October 2023** | |
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| **8:30-9:50 am** | **Session 5: Gene therapy and human models**<br>Chair: Maria-Patapia Zafeiriou & Niklas Schwarz |
| 8:30 | Gabriele Lignani (London): On demand gene therapy for epilepsy |
| 8:50 | Moran Rubinstein (Tel Aviv): Viral-mediated expression of Nav1.1 ameliorates Dravet syndrome in mice post seizure onset |
| 9:10 | Nael Kasri (Nijmegen): Leveraging spontaneous activity in human stem cell derived neurons to model *SCN1A*-related epilepsies |
| 9:30 | Maria-Patapia Zafeiriou/Hendrik Rosewich (Göttingen): Modeling *ATP1A3* related disorders in bioengineered neuronal organoids |
| 10:00 | Sarah Weckhuysen (Antwerpen): *KCNQ2*-related epilepsies in iPSC-derived neuronal cultures |
| 10:20 | Filip Rosa (Tübingen): *KCNQ2*-DEE stem cell model shows a developmental delay along a prologed culture time up to 6 months |
| **10:35-11.00 am** | Coffee Break |
| **11:00-12:30 am** | **Session 6: Epigenetics, protein structural modeling & prediction tools**<br>Chair: Rikke Steensbjerre Møller & Christopher Reid |
| 11:00 | Katja Kobow (Erlangen): Epigenetics for diagnosis and mechanistic understanding of drug-resistant focal structural epilepsies |
| 11:20 | Christian Bosselmann (Cleveland): Predicting the functional effects of ion channel variants: State of the art and future directions |
| 11:40 | Tobias Brünger (Cologne): Predicting molecular function and pathogenicity in ion channel disorders |
| 12:00 | Giulia Rossetti/Jan-Philipp Machtens (Jülich): Studying functional gating mechanisms in wild-type or mutant $Na_V$ channels/In-silico variant-specific drug screening |
| **12:30-1:30 pm** | **Farewell Lunch with free discussions** |