



### 3<sup>rd</sup> Channelopathy Meeting Tübingen

**Genetic epilepsies and other neuronal ion channel disorders:**

**Mechanisms and therapeutic perspectives**

23<sup>rd</sup>-25<sup>th</sup> September 2025, Tübingen, Germany

#### Preliminary Program

| Tuesday, 23 September 2025   |  |
|------------------------------|--|
| 7:30 pm                      | Get-Together Schloss Hohentübingen   |
| Wednesday, 24 September 2025 |  |
| 8:30 am                      | Welcome and introduction: Holger Lerche (Tübingen)   |
| 8:40-10:00 am                | <b>Session 1: Ion channel mechanisms I</b><br>Chair: Dirk Isbrandt & Snezana Maljevic  |
| 8:40                         | Maurizio Taglialatela (Neapel): <i>KCNQ</i> modulators: from an atomistic view of channel gating to personalized therapies                     |
| 9:00                         | Marisol Sampedro Castaneda (London): <i>CDKL5</i> and its interaction with <i>Ca<sub>v</sub>2.3</i>  |
| 9:20                         | Massimo Mantegazza (Valbonne-Sophia Antipolis): Mechanisms of <i>SCN2A</i> variants associated with Autism Spectrum Disorder                   |
| 9:40                         | Ahmed Eltokhi (Columbus): Gating Pore Current in <i>Na<sub>v</sub>1.2</i> Mutations: Implications for Autism and Epilepsy                      |
| 9:55                         | Daniil Kirianov (Cologne): Unravelling the seizure initiation and progression through the neonatal <i>Scn2a</i> (p.A263V) hippocampus          |
| 10:15-10:40 am               | Coffee Break   |
| 10:40-12:00 am               | <b>Session 2: Immunological and other epileptogenic mechanisms</b><br>Chair: Albert Becker & Christian Geis                                    |
| 10:40                        | Harald Prüß (Berlin): Antibody-mediated channelopathies - new disease concepts   |
| 11:00                        | Julika Pitsch (Bonn): Microstructural correlates of neuro-immune dysregulation in autoimmune encephalitis                                      |
| 11:20                        | Michael Wenzel (Bonn): Hippocampal spreading depolarization as a key epilepsy disease factor   |
| 11:40                        | Christian Geis (Jena): Effects of NMDAR autoimmunity on receptor function and hippocampal circuits   |
| 12:00-1:05 pm                | <b>Session 3: Progress in genetic mechanisms and prediction algorithms</b><br>Chair: Rikke Møller & Yvonne Weber                               |
| 12:00                        | Alex Hoischen/Holm Graeßner (Nijmegen/Tübingen): Rare diseases – boosting diagnostic yield by data re-analysis and long-read genome sequencing |
| 12:30                        | Josua Kegele (Tübingen): Results in the novel-omics sequencing project   |
| 12:45                        | Henrike Heyne (Cambridge): Predicting functional effects of genetic variants in ion channels with methods of deep learning                     |
| 1:05-2:15 pm                 | Lunch Break  |
| 2:15-3:25 pm                 | <b>Session 3: Gene therapy</b><br>Chair: Marius Ueffing & Gaia Colasante   |
| 2:15, virtuell               | <b>Keynote lecture</b><br>Steven Gray (Dallas): Gene therapy for neurological disorders: the example of <i>SLC6A1</i> deficiency               |
| 2:45                         | Dirk Grimm (Heidelberg): Parvoviral vector-mediated gene therapy in the CNS (and beyond): A no-brainer?  |
| 3:05                         | Elvir Becirovic (Zürich): AAV vector-mediated delivery of large genes for retinal gene therapy and beyond                                      |
| 3:25-4:30 pm                 | <b>Poster session (with coffee)</b>  |
| 4:30-6:30 pm                 | <b>Session 4: Clinical trials and Molecular therapeutic board (case reports)</b><br>Chair: Holger Lerche & Steve Petrou                        |

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| 4:30      | Walid Fazeli (Bonn)/Matias Wagner (Munich)/Steve Petrou (PraxisMedicine, Boston): tbd  |
| 4:55      | Oleg Vinogradov/Elena Kuster (Tübingen)/Henning Steinhagen (Edinburgh): tbd  |
| 5:20      | Lidia Carotenuto (Antwerp): The fast-dissociating D2 antagonist antipsychotic JNJ-37822681 is a neuronal K <sub>v</sub> 7 channel opener: potential repurposing for epilepsy treatment |
| 5:30      | Victoria Ruschil (Tübingen): Familial episodic pain syndrome in a family with an unknown <i>SCN11A</i> -variant  |
| 5:40      | Rikke Steensbjerre Møller (Dianalund): From disease-causing variants to targeted therapy in GABA-A receptor related epilepsies   |
| 5:50      | Francesco Miceli (Naples): <i>In vitro</i> pharmacological characterization of a potent blocker of the epilepsy-associated K <sub>v</sub> 7.2 channel                                  |
| 6:00-6:30 | Further cases  |
| 8:00 pm   | Dinner Restaurant „Liquid“   |

| Thursday, 25 September 2025 |  |
|-----------------------------|--|
| 8:30-9:35 am                | <b>Session 6: Advanced techniques and model systems</b><br>Chair: Ulrike Hedrich & Michael Wenzel  |
| 8:30                        | Simon Musall/Viviana Rincon Montes (Jülich): High-Density Neurophysiology: From Rigid Arrays to Flexible Interfaces  |
| 8:55                        | Karen van Loo (Aachen): Gene modulation in epilepsy: using organotypic brain slice cultures to analyze functional and molecular changes  |
| 9:15                        | Yvonne Weber (Aachen): Drosophila as a model system for genetic epileptic and developmental epilepsies   |
| 9:35-1:00 pm                | <b>Session 7: Ion channel mechanisms II</b><br>Chair: Thomas Wuttke & Gabriele Lignani   |
| 9:35                        | Franck Kalume (Seattle): Interneuron-specific dual-AAV <i>SCN1A</i> gene replacement for Dravet syndrome: A preclinical update   |
| 9:55                        | Gaia Colasante (Milan): Enhancing Nav1.1 Translation by Gene Editing to Treat Dravet Syndrome  |
| 10:15                       | Gabriele Lignani (London): Prenatal sodium channel dysfunction in Dravet syndrome alters cortical development  |
| 10:35-11:00 am              | Coffee Break   |
| 11:00                       | Snezana Maljevic (Melbourne): Outside the Spotlight: The Unexpected Roles of Ion Channels in Early Brain Development   |
| 11:20                       | GP Gilbert (Xenon, Burnaby): Selective potentiation of Nav1.1 channels by XPC-A in Dravet mice suppresses spontaneous seizures, prevents SUDEP, and increases long term potentiation |
| 11:40                       | Christoph Fahlke (Jülich)/Daniela Miely (Tübingen): Molecular and cellular basis of episodic ataxia 6  |
| 12:00                       | Alison Obergrussberger (Nanion, Munich): Exploring the role of lysosomal ion channels and transporters in neurodegenerative diseases   |
| 12:20                       | Myriad Essid (Lyon): Involvement of <i>CACNA2D2</i> in developmental and epileptic encephalopathy through disruption of calcium channel functionality and synaptic function          |
| 12:40                       | Evangelos Kiskinis (Chicago): Advanced iPSC models on <i>KCNQ2</i> and <i>KCNH1</i> associated epilepsy  |
| 1:00-1:30 pm                | <b>Farewell Lunch with free discussions</b>  |

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