3rd Channelopathy Meeting Tübingen

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

23rd-25th September 2025, Tübingen, Germany

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	**Session 1: Ion channel mechanisms I** Chair: Dirk Isbrandt & Snezana Maljevic
8:40	Maurizio Taglialatela (Neapel): *KCNQ* modulators: from an atomistic view of channel gating to personalized therapies
9:00	Marisol Sampedro Castaneda (London): *CDKL5* and its interaction with $Ca_V2.3$
9:20	Massimo Mantegazza (Valbonne-Sophia Antipolis): Mechanisms of *SCN2A* variants associated with Autism Spectrum Disorder
9:40	Ahmed Eltokhi (Columbus): Gating Pore Current in $Na_V1.2$ Mutations: Implications for Autism and Epilepsy
9:55	Daniil Kirianov (Cologne): Unravelling the seizure initiation and progression through the neonatal *Scn2a* (p.A263V) hippocampus
10:15-10:40	Coffee Break
10:40-12:00	**Session 2: Immunological and other epileptogenic mechanisms** 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	**Session 3: Progress in genetic mechanisms and prediction algorithms** 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): Short- and long-read genome sequencing in early-onset DEE: results and insights
12:45	Henrike Heyne (Cambridge): Predicting functional effects of genetic variants in ion channels with methods of deep learning
1:05-2:15	Lunch Break
2:15-3:25	**Session 3: Gene therapy** Chair: Marius Ueffing & Gaia Colasante
2:15, virtuell	**Keynote lecture** Steven Gray (Dallas): Gene therapy for neurological disorders: the example of *SLC6A1* 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	Poster session (with coffee)
4:30-6:30	**Session 4: Clinical trials and Molecular therapeutic board (case reports)** Chair: Holger Lerche & Steve Petrou
4:30	Victoria Ruschil (Tübingen): Familial episodic pain syndrome in a family with an unknown *SCN11A*-variant

4:40	Walid Fazeli (Bonn)/Matias Wagner (Munich)/Steve Petrou (PraxisMedicine, Boston): Towards disease-modification in *SCN2A* DEE: insights into antisense-oligonucleotide treatment
5:05	Oleg Vinogradov/Elena Kuster (Tübingen)/Henning Steinhagen (Lario, Edinburgh): Towards a targeted therapy for *CACNA1E*-associated DEE: Functional insights and natural history study
5:30	Lidia Carotenuto (Antwerp): The fast-dissociating D2 antagonist antipsychotic JNJ-37822681 is a neuronal K_V7 channel opener: potential repurposing for epilepsy treatment
5:40	Rikke Steensbjerre Møller (Dianalund): From disease-causing variants to targeted therapy in GABA-A receptor related epilepsies
5:50	Francesco Miceli (Naples): *In vitro* pharmacological characterization of a potent blocker of the epilepsy-associated $K_V7.2$ channel
6:00-6:30	Further cases
8:00 pm	**Dinner Restaurant „Liquid“**

Thursday, 25 September 2025	
8:30-9:35 am	**Session 6: Advanced techniques and model systems** 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	**Session 7: Ion channel mechanisms II** Chair: Thomas Wuttke & Gabriele Lignani
9:35	Franck Kalume (Seattle): Interneuron-specific dual-AAV *SCN1A* gene replacement for Dravet syndrome: A preclinical update
9:55	Gaia Colasante (Milan): Enhancing $Na_V1.1$ 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	Coffee Break
11:00	Snezana Maljevic (Melbourne): Outside the Spotlight: The Unexpected Roles of Ion Channels in Early Brain Development
11:20	JP Gilbert (Xenon, Burnaby): Selective potentiation of $Na_V1.1$ 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	Gaëtan Lesca (Lyon): Involvement of *CACNA2D2* in developmental and epileptic encephalopathy through disruption of calcium channel functionality and synaptic function
12:40	Evangelos Kiskinis (Chicago): Advanced iPSC models on *KCNQ2* and *KCNH1* associated epilepsy
1:00-1:30	**Farewell Lunch with free discussions**

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