

## Introductory Remarks to Symposium 24

### Inflammatory mechanisms of epileptogenesis

*Felix Rosenow, Sven G. Meuth and Nico Melzer, Frankfurt/Main and Duesseldorf*

Epilepsy is one of the most frequent chronic neurological diseases affecting more than 50 million people worldwide. It strikes people of all ages and is associated with a 2-3 fold increase in mortality, a high number of years lived with disability and life years lost. The burden of epilepsy is not only based on recurrent seizures but also on cognitive dysfunction and psychobehavioral comorbidities.

Currently, targeting epileptic seizures is the main focus of therapeutic efforts, underlined by the fact that nearly all of the >30 approved antiepileptic drugs act on neurons to suppress seizures without affecting the underlying brain pathology, and about one third of patients continue to have seizures while frequently also experiencing adverse effects. For decades, epilepsy research had a strong focus on neuronal pathomechanisms. However, causes and consequences of epilepsy extend well beyond neurons and seizures and involve adjacent biological systems. Recently, immune mechanisms and dysfunction of the neurovascular unit emerged as novel mechanisms contributing to epileptogenesis and thus promote initiation, perpetuation and progression of epilepsy. Likewise, these mechanisms appear to be involved in cognitive and psychobehavioral dysfunction.

The proposed symposium brings together international experts in translational investigation of epileptogenesis: Prof. Walker, London, will give a conceptual definition and overview on classical neuronal mechanisms of epileptogenesis in focal epilepsies. Prof. Aronica, Amsterdam, will give a talk on the precipitation of innate and adaptive immune responses through focal epileptic activity and their contribution to epileptogenesis. Vice versa, Prof. Vezzani, Milano, will provide an overview on the precipitation of epileptic activity and its perpetuation by focal innate and adaptive immune responses. Prof. Friedman, Halifax & Beer-Sheva, will report on the role of the neurovascular unit as master regulator of seizure-induced inflammation and inflammation-induced seizures. Completed by a short students talk of Josefine Sell, Jena, the proposed symposium will provide the audience with a timely overview of this expanding field.

## Symposium 24

*Friday, March 24, 2023  
08:30 - 10:30, Lecture Hall 104*

*Chairs: Felix Rosenow and Sven G. Meuth,  
Frankfurt/Main and Duesseldorf  
Organisation: Nico Melzer, Duesseldorf*

- 08:30 **Opening Remarks**  
Felix Rosenow, Sven G. Meuth
- 08:35 Mathew C. Walker, London, UK  
CONCEPTUAL DEFINITION AND NEURONAL MECHANISMS OF EPILEPTOGENESIS IN FOCAL EPILEPSIES (S24-1)
- 09:00 Eleonora Aronica, Amsterdam, The Netherlands  
NEUROINFLAMMATION IN HUMAN FOCAL EPILEPSIES (S24-2)
- 09:25 Annamaria Vezzani, Milano, Italy  
NEUROINFLAMMATION INDUCED SEIZURES AND EPILEPSY: EXPERIMENTAL MODELS AND TARGETED PHARMACOLOGICAL TREATMENTS (S24-3)
- 09:50 Alon Friedman, Halifax, Canada  
NEURO-GLIA-VASCULAR INTERACTIONS IN BRAIN DISORDERS: FROM BENCH TO BED (S24-4)
- 10:15 Josefine Sell, Jena  
PATHOGENIC EFFECTS OF GABAB RECEPTOR ANTIBODIES FROM PATIENTS WITH AUTOIMMUNE ENCEPHALITIS ON NEURONAL SIGNALING AND MEMORY CONSOLIDATION (S24-5)
- 10:25 **Concluding Remarks**  
Felix Rosenow, Sven G. Meuth