Introductory Remarks to Symposium 7

Disease-specific autoantibodies against neuronal surface antigens disrupt synaptic function

Christian Geis and Stefan Hallermann, Jena and Leipzig

The discovery of pathogenic autoantibodies against central nervous system (CNS) synaptic antigens in patients with severe neuropsychiatric disorders was a breakthrough in neurology. This novel entity and expanding spectrum of CNS disorders has been termed "autoimmune encephalitis".

This symposium, under the umbrella of the DFG Research Unit SYNABS (FOR3004), will address how disease-specific human antibodies impact neuronal and synaptic function leading to severe brain disease and prototypical disease symptoms.
Josep Dalmau will report the discovery of NMDA receptor antibodies in patients with previously unknown autoimmune brain disorder and delineate pathogenic mechanisms and recent advances of target-specific therapeutic approaches. Sabine Liebscher will demonstrate how human NMDAR antibodies compromise dynamics of structural plasticity in the CA1 region of the hippocampus and affect circuit mechanisms as a potential basis of memory and cognitive deficits in disease. Dietmar Schmitz will outline cloning of human monoclonal antibodies to the synaptic linker protein LGI1 and their effects on excitability and glutamatergic synaptic transmission. The neuropathology of autoimmune encephalitis with neuronal surface antibodies will be demonstrated by Romana Höftberger and implications for disease pathophysiology will be discussed. Our student speaker, Abdulla Taha, will share insights in his current research project on autoantibody-NMDAR molecular and structural interaction.

In summary, the symposium will bring together interdisciplinary experts to highlight our current knowledge on antibody-induced CNS disease and synaptic pathology determining neuropsychiatric disease.

Symposium 7

Wednesday, March 22, 2023
15:15 – 17:15, Lecture Hall 101

Chairs: Christian Geis and Stefan Hallermann, Jena and Leipzig

15:15 **Opening Remarks**

15:20 Josep Dalmau, Barcelona, Spain
ANTI-NMDA RECEPTOR ENCEPHALITIS: FROM DISCOVERY TO NEW INSIGHTS (S7-1)

15:45 Sabine Liebscher, Martinsried
ANTI-NMDAR AUTOANTIBODIES DISRUPT CA1 PLACE CELL DYNAMICS (S7-2)

16:10 Dietmar Schmitz, Berlin
HUMAN CEREBROSPINAL FLUID MONOCLONAL LGI1 AUTOANTIBODIES INCREASE NEURONAL EXCITABILITY (S7-3)

16:35 Romana Höftberger, Vienna, Austria
NEUROPATHOLOGY OF ANTIBODY-ASSOCIATED ENCEPHALITIS (S7-4)

17:00 Abdulla Taha, Jena
HUMAN ANTI-GluNR1 AUTOANTIBODIES INFLUENCE NMDAR CHANNEL FUNCTION (S7-5)

17:10 **Concluding Remarks**