

SPP 1757

Gliotransmitter release in astrocytic heterogeneity and brain activity

Speaker:

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Funding period:

Since 2014

Project description:

This project investigates the important role of astrocyte-neuron communication in orchestrating synaptic transmission. In the ongoing funding period, we have provided strong evidence for the co-existence of independent secretion pathways in astrocytes that employ SynaptobrevinII (SybII) and Cellubrevin (Ceb) as functionally non-overlapping v-SNARE proteins and oppositely regulate fast glutamatergic neurotransmission. Thereby, we could elucidate the heterogeneity and diversity of astrocytic signaling pathways, which may represent an integral part of bidirectional neuron-astrocyte communication, setting the stage for further experiments to delineate how gliotransmission shapes neuronal signaling in vivo. By using electrophysiological recordings in combination with high-resolution imaging and a variety of v-SNARE null mutants (constitutive and cell-type specific knock outs) as well as different Synaptotagmin deficient mice, we will investigate the activation of distinct gliotransmitter secretion pathways, their contribution to the heterogeneity of astrocyte function and participation in the context of cerebral disorders.

Quelle:

<https://gepris.dfg.de/gepris/projekt/254906897?language=en>