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Translation control of glial key players in neuron-glia interactions

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Project description:

In the hippocampus two clearly distinct astroglia subtypes were identified: GluR cells express ionotropic glutamate receptors and receive direct synaptic input from glutamatergic neurons. GluT cells, the classical astrocytes, express glutamate transporters and provide extracellular glutamate clearance. They also exhibit intercellular gap junction coupling mediated by connexins which are operative in the spatial buffering of potassium ions released by neuronal activity. GluT cells also can release gliotransmitters (glutamate and ATP) by exocytosis, reverse glutamate transport or through connexin hemichannels. The function of distinct astroglial cell populations in the context of neuron-glia interaction is thus determined in large part by the expression of glutamate receptors and -transporters as well as connexins. Recent findings indicate that this expression is subject to translational regulation via microRNAs or Cytoplasmic Polyadenylation Element binding (CPEB) proteins expressed in brain. We want to investigate in the healthy brain the impact of translational regulation on the function of glutamate transporters, -receptors and connexins, i.e. expression of tools used by these cells in the neuron-glia crosstalk.

Quelle:

<https://gepris.dfg.de/gepris/projekt/82265958?language=en>