

Synaptic Tau protein activities in health and disease

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Aggregation of the neuronal microtubule associated protein Tau (MAPT) is a known hallmark pathology in Alzheimer's disease (AD) and several other neurodegenerative diseases. In the presymptomatic phase of AD, prior to overt Tau aggregation when Tau is still soluble, synaptic and network dysfunctions are among the earliest changes, suggesting that Tau can modulate synaptic activity. In healthy neurons, Tau is a highly soluble protein that is enriched in the axon where it has access to pre-synapses. In cellular stress conditions, Tau "invades" the somatodendritic compartment and gains access to post-synapses. In this talk, I will discuss the multifaceted role of Tau at synapses and their (potential) role for neuronal (patho)physiology.