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INM-KOLLOQUIUM

"THE ALZHEIMER'S DISEASE ASSOCIATED AMYLOID- β PRECURSOR PROTEIN (APP) FUNCTIONS AS SYNAPTIC CELL ADHESION MOLECULE"

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Freitag, 19.01.2018, 11.00 Uhr

INM, Leibniz-Saal, Campus D2 5
Gastgeberin: Prof. Dr. Aránzazu del Campo Bécares

The amyloid-β precursor protein (APP) is a type-I transmembrane protein sequentially cleaved by different proteases. Under pathological conditions this processing leads to abnormal deposition of neurotoxic amyloid-β (Aβ) peptide in brain of Alzheimer's disease (AD) patients, while APP and its homologues APLP1 and APLP2 are involved under physiological conditions in synaptic plasticity. This function is mediated at one hand by the secreted ectodomains, functioning as neurotrophic factors and on the other hand by full-length APP/APLPs. We observed pre- and postsynaptic localization of full-length APP/APLPs and showed that they are capable to form homo- and heterotypic trans-cellular dimers. Therefore, we assumed that APP/APLPs might function as synaptic adhesion molecules. Consistently, we observed pre- and postsynaptic localization and found that heterologous expression of APP/APLPs in non-neuronal cells induces presynaptic differentiation in contacting axons of co-cultured neurons. Further, we show that synapse formation depends on expression of APP/APLPs at both sites of the synapse and provide evidence that synaptic APP/APLPs mediated adhesion can be modified by metals and extracellular matrix components. Together, our results establish APP/APLPs as synaptic cell adhesion molecules required for proper synapse formation/maintenance.

Wir laden 15 Minuten vor Beginn zu einem Get-together mit dem Referenten ein.

KONTAKT

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