

“The spine apparatus and synaptic plasticity – one organelle to rule them all?”

Speaker

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Date and Time

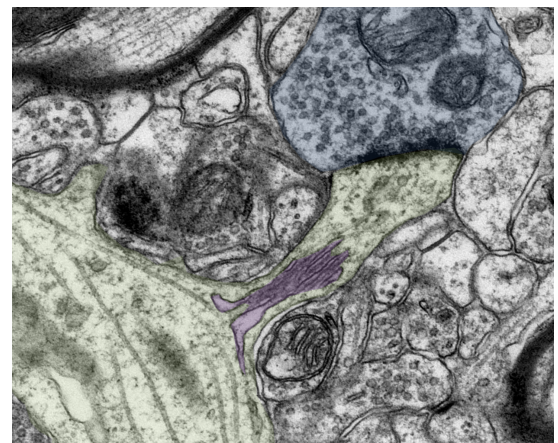
Thursday, 30.11.2023
12 o'clock

Location

Center for Biostructural Imaging of Neurodegeneration (BIN)
*Von-Siebold-Straße 3a, 37075 Göttingen
Seminar Room*

Abstract

Over 60 years since its discovery, the spine apparatus organelle (SA) continues to intrigue neuroscientists. Initially identified by Gray in 1959, this enigmatic structure composed of stacked smooth endoplasmic reticulum, found in a subset of dendritic spines, is closely tied to synaptic plasticity. Recent findings have linked the actin-binding protein synaptopodin with the SA, highlighting its crucial role in synaptic strength modulation. The SA is implicated in both Hebbian and homeostatic plasticity, with emerging evidence suggesting its involvement in conditions like Alzheimer's disease. This talk will explore the evolving understanding of the SA in synaptic plasticity, focusing on its role in Hebbian and homeostatic mechanisms, and the recent insights on synaptopodin/SA-mediated synaptic plasticity in the human neocortex.



The spine apparatus in a dendritic spine (human neocortex)