iBehave Seminar Series 2023

Speaker

MARLENE BARTOS

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Title: Interneuron circuits govern the hippocampal response to novelty

Abstract: The dentate gyrus (DG) is the input stage of the hippocampal trisynaptic loop. It transforms entorhinal inputs into a sparse output pattern that is relayed to CA3. Lesion studies have implicated the DG in a variety of cognitive functions required to form memories. Intriguingly however, not all hippocampus dependent mnemonic functions are impaired by DG lesions.This indicates that it performs specific computations that are required only during certain operating modes of the hippocampus. There is a wealth of information about the network architecture and characteristics of the various DG neuron types and an extensive body of theoretical works has proposed ways in which these architectural elements may underlie DG's function in cognitive operations. However, until recently little data were available on the activity of identified neuron types in the DG of behaving animals. Recent studies have recorded and manipulated the activity of specific DG neuron classes during various memory tasks and their results signify major revisions of current models of DGs' computational function. Here, several DG-dependent behaviors will be brought in light of recent findings and attempt to explore possible mechanistic links between cellular as well as network activities and the computations carried out by the DG neuronal network. Particular focus will be put on the role of GABAergic interneuron types such as parvalbumin-expressing perisomatic inhibitory and somatostatin-positive- dendrite inhibiting interneurons and their role in the discrimination of environments and novelty detection.

On-site location: Room 1.011, 2. Sammelbau Biologie, Campus Melaten-Süd, 52074 Aachen

August 14, 2023
at 4 pm

Host:
Prof. Dr. Björn Kampa
RWTH Aachen University

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for Zoom meeting details.