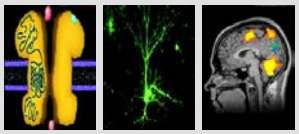

Molecular and Neural Correlates of Memory and Cognition

April 9 - 10, 2019 Veranstaltungszentrum, Ruhr University Bochum

Tuesday April 9, 13:40 – 16:20

Session 2 **Neural mechanisms underlying memory and cognition**

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How visual is the visual cortex? The influence of auditory information on the detection and processing of visual stimuli

The detection of stimuli is a basic, yet a fundamental feature of perception because it enables individuals to identify the presence of important objects and events in their surroundings, such as potential threats or food sources. The accuracy and speed by which stimuli are detected were shown to improve when stimulus features of multiple sensory modalities are integrated, for example, vision and audition. The neuronal mechanisms underlying multisensory detection behavior have been extensively investigated in studies on human subjects with techniques such as EEG and fMRI and were thus mapped mostly at the mesoscopic level. An in-depth understanding of single unit, microcircuit, and systems level mechanisms, however, is currently lacking. In this talk, I present an audio-visual detection task in which mice show a robust multisensory performance gain, especially for stimuli that are faint. I will further discuss how neuronal responsivity in anatomically connected areas of the visual cortex is influenced by the concurrent presentation of a tone and how this modulation is associated with detection behavior.