DANDRITE
Danish Research Institute of Translational Neuroscience
Nordic EMBL Partnership for Molecular Medicine

AARHUS UNIVERSITY

DANDRITE Topical seminar
Friday 1st November 2019 at 10 am
Auditorium D1 Mathematic Department, building 1531, room 113

Prof. Dr. Jan Gründemann

Professor at the University of Basel, Switzerland.

Imaging deep: State and sensory coding in subcortical circuits

Internal states, including affective or homeostatic states, are important behavioral motivators. The amygdala is a key regulator of motivated behaviors, yet how distinct internal states are represented in amygdala circuits is unknown. Here, by longitudinally imaging neural calcium dynamics across different environments in freely moving mice, we identify changes in the activity levels of two major, non-overlapping populations of principal neurons in the basal amygdala (BA) that predict switches between exploratory and non-exploratory (defensive, anxiety-like) states. Moreover, the amygdala broadcasts state information via several output pathways to larger brain networks, and sensory responses in BA occur independently of behavioral state encoding. Thus, the brain processes external stimuli and internal states orthogonally, which may facilitate rapid and flexible selection of appropriate, state-dependent behavioral responses.

Host: Group Leader Sadegh Nabavi, DANDRITE, Dept. of Molecular Biology and Genetics, Aarhus University