AARHUS
UNIVERSITY
DEPARTMENT OF BIOMEDICINE

Neuroscience Seminar

Tuesday 23 February 2021

15:00 – 16:00

Online via Zoom

Please find Zoom link via the Outlook calendar invitation. If you have not received this, please write an e-mail to Katrine: karasmus@dandrite.au.dk

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The Many Layers of Touch

The neocortex mediates all of human and animal cognition—breathtakingly encompassing sensation, perception, decision making, and movement. These diverse functions are achieved by highly stereotyped circuitry that nature appears to have iterated across the entire surface of the brain. Dysfunction of cortical circuits contributes to numerous neurological and psychiatric disorders. We previously showed that ascending signals from thalamus are copied separately to the superficial and deep layers of sensory cortex. Despite dense connections between layers, these two halves of neocortex appear able to function independently despite their dense interconnections. We are presently investigating the necessity of the primary somatosensory cortex and its constituent layers cell types in various tactile object recognition behaviors, both published and unpublished. I will show how modern optogenetic and older lesion approaches can lead to radically different conclusions about necessity of a brain structure or cell type to a behavior. We have found that sensory cortex is dispensable for learning and performing some of the field's most widely used behavioral paradigms. This underscores the competency of subcortical systems at basic behavioral tasks and suggests alternative scenarios by which cortex contributes to complex behavior. I will also show how learning alters apical dendrites in cortical layer 1 as new behaviors are acquired.

Host: Poul Henning Jensen, Professor and Group Leader at Dept. of Biomedicine, Aarhus University.