DANDRITE Lecture
Thursday 16 November 2017
14:00-15:00
Building 1170, room 347 (Aud. 6) Aarhus University

Jens Christian Schwamborn

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Research area: Parkinson’s disease, Systems Biomedicine, Stem cells, Neurogenesis, Regeneration

Human brain organoids as in vitro model for Parkinson’s disease

Research on human brain development and neurological diseases is limited by the lack of advanced experimental in vitro models that truly recapitulate the complexity of the human brain. Here, we describe a robust human brain organoid system that is highly specific to the midbrain derived from regionally patterned neuroepithelial stem cells. These human midbrain organoids contain spatially organized groups of dopaminergic neurons, which make them an attractive model for the study of Parkinson’s disease. Midbrain organoids are characterized in detail for neuronal, astroglial, and oligodendrocyte differentiation. Furthermore, we show the presence of synaptic connections and electrophysiological activity. The complexity of this model is further highlighted by the myelination of neurites. The present midbrain organoid system has the potential to be used for advanced in vitro disease modeling and therapy development.

Host: Prof. Poul Henning Jensen, DANDRITE, Dept. of Biomedicine, Aarhus University

5 recent publications


