

SAVE THE DATE: SCIENTIFIC LECTURE SERIES

MOVEMENT DISORDERS & NEUROMODULATION UNIT
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Seminarraum Neurologie

Bonhoefferweg 3, Klinik für Neurologie (CCM)



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Neurocircuitry underlying effective deep brain stimulation

Deep brain stimulation (DBS) is a promising therapeutic approach for patients with treatment resistant mental health illnesses, including obsessive compulsive disorder (OCD), major depressive disorder including (MDD) and for certain motor control disease including Parkinson's disease. These involve frontal cortico-cortical and frontal cortico-basal ganglia networks. DBS primarily targets myelinated fibers that carry information from and to the above structures. As such, the most common DBS targets are: 1. The subgenual cingulate white matter (SCGwm), the white matter adjacent to cortical areas 32 and 25. This site is primarily used for treatment resistant depression. 2. The anterior limb of the internal capsule (ALIC) that carries descending and ascending cortical fibers. This site is used for both treatment resistant MDD and OCD. 3. The connections of the STN, including the hyperdirect pathway that carries cortico-STN fibers. This site is commonly used for Parkinson's disease is now experimentally used for OCD. We use a combination of nonhuman primate (NHP) tracing experiments and NHP and human diffusion magnetic resonance imaging (dMRI) to delineate the organization of PFC fiber pathways, which allows insight into which connections are likely to be involved at each DBS electrode site. This talk will focus on how cortical fibers are organized within the SCGwm, ALIC, and STN and the fibers and terminal fields likely to be affected by DBS electrodes placed within those regions.