

# Parkinson's disease pathophysiology

At present, the pathogenesis of Parkinson's disease is not clear.

Data provide direct electrophysiological support for the existence of functionally segregated cortico-basal ganglia networks controlling motor behavior in Parkinson patients, and corroborate the assumption of Parkinson patients being shifted from habitual towards goal-directed behavior <sup>1)</sup>.

Many studies suggest that **MicroRNAs** play a very important role in the progress of Parkinsonism.

Many studies showed that abnormal oscillations in the **cortical basal ganglia pathway** is involved in the pathophysiology of Parkinson's disease (PD).

Beta band oscillations in the **subthalamic nucleus** (STN) have been proposed as a pathophysiological signature in patients with Parkinson's disease (PD).

Results show a correlation between local STN 8 to 35 Hz power and impairment in PD, further supporting the role of subthalamic oscillatory activity as a potential biomarker for PD <sup>2)</sup>.

<sup>1)</sup>

Bichsel O, Gassert R, Stieglitz L, Uhl M, Baumann-Vogel H, Waldvogel D, Baumann CR, Imbach LL. Functionally separated networks for self-paced and externally-cued motor execution in Parkinson's disease: Evidence from deep brain recordings in humans. *Neuroimage*. 2018 May 5. pii: S1053-8119(18)30410-5. doi: 10.1016/j.neuroimage.2018.05.012. [Epub ahead of print] PubMed PMID: 29738912.

<sup>2)</sup>

Neumann WJ, Degen K, Schneider GH, Brücke C, Huebl J, Brown P, Kühn AA. Subthalamic synchronized oscillatory activity correlates with motor impairment in patients with Parkinson's disease. *Mov Disord*. 2016 Aug 22. doi: 10.1002/mds.26759. [Epub ahead of print] PubMed PMID: 27548068.

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