HaGuide

Alpha Omega together with Prof. Bergman and Prof. Israel and their colleagues from the Department of Medical Neurobiology, The Hebrew University-Hadassah Medical School and the Department of Neurosurgery, Hadassah Medical Center, Jerusalem, Israel, developed HaGuide a real-time software solution designed to accurately detect the STN region and its entrance and exit boundaries using microelectrode recording during surgery.

The software robustly detects intra STN detection of Dorso Lateral Oscillatory Region (DLOR) and Ventro Medial non-oscillatory region (VMNR) boundaries and recommend the optimal location for stimulation to neurosurgeon.

The HaGuide SW is easily integrated into the Neuro Omega and NeuroSmart systems for targeting the STN during deep brain stimulation (DBS) procedures.

Benefits:

Simplifies the analysis of the recorded data real-time analysis Accurately displays the location of the electrode(s) in the brain, by integrating additional Alpha Omega software solutions for intraoperative planning.

The aim of a study was to assess the accuracy of a software tool (HaGuide Tool) in identifying entry into the STN, exit from the STN, the optimal implant track for DBS, and the optimal implant depth.

The HaGuide Tool is a real-time algorithm implemented on the Neuro Omega system (Alpha Omega Engineering), designed to visually map the STN boundaries. In addition, the HaGuide Tool algorithm provides depth information related to defining the sensorimotor region of the STN, putatively located in the dorsolateral region and characterized by high theta (tremor related, 3–7 Hz) and beta (13–30 Hz) oscillations.

The software can reliably and accurately estimate entry into and exit from the STN and select the track corresponding to ultimate DBS implantation [1)].

1)
Thompson JA, Oukal S, Bergman H, Ojemann S, Hebb AO, Hanrahan S, Israel Z, Abosch A. Semi-automated application for estimating subthalamic nucleus boundaries and optimal target selection for deep brain stimulation implantation surgery. J Neurosurg. 2018 May 18:1-10. doi: 10.3171/2017.12.JNS171964. [Epub ahead of print] PubMed PMID: 29775152.