

Doctoral study program: Neurosciences (specialization Neurology)

Form: Doctoral - present

Department: 1st Department of Neurology, St. Anne's Univ. Hospital and Faculty of Medicine, Masaryk University, Brno, Czech Republic

Supervisor: prof. MUDr. Milan Brázdil, Ph.D., **Consultant:** MUDr. Eva Zatloukalová, Ph.D.

Ph.D. position: The role of neurodegenerative processes in pharmacoresistant TLE

Annotation:

This project aims to the role of neurodegeneration in the pathogenesis, manifestation, and prognosis of pharmacoresistant mesiotemporal lobe epilepsy with hippocampal sclerosis (MTLE/HS). The connection between neurodegeneration-associated proteins (beta-amyloid, hyperphosphorylated tau, alpha-synuclein, and TDP-43) commonly linked with neurodegenerative disorders like Alzheimer's disease with MTLE/HS will be studied. Resected tissue from a large cohort of surgically treated MTLE/HS patients will be semi-quantitatively analysed and correlated with clinical characteristics and electrophysiological profiles from previous SEEG recordings. This ambitious project holds promise for identifying new prognostic biomarkers for both postoperative seizure freedom and cognitive function, as well as uncovering novel therapeutic targets. Ultimately, it aims to enhance our understanding of the processes underlying epileptogenesis and cognitive decline in mesial temporal lobe epilepsy with hippocampal sclerosis.

Aims

- collect clinical and electrophysiological data of pharmacoresistant MTLE/HS patient cohort
- participate on the immunohistochemical analysis of resected tissue
- correlate clinical characteristics with the results of immunohistochemical analysis
- publication and presentation of the results

Funding of the research and PGS position:

AZV (NU22-04-00366) - The role of neurodegeneration in pathogenesis, manifestations and prognosis of MTLE/HS - in vivo, ex vivo and in vitro perspective

Národní ústav pro neurologický výzkum (LX22NPO5107)

Requirements for the successful PhD student:

1. Publish 1 first author paper in a Q1 or Q2 journal or 2 first author papers in a Q3 journal by the end of the PhD studies.
2. Study visit abroad (minimum length 1 month).
3. Complete required PhD courses.
4. Regular teaching of neurology for pregradual students at LF MUNI (general medicine and physiotherapy).
5. English reading and writing skills at B2 level (upper intermediate) or higher.
6. Reliability and good work ethic.

Information about the supervisor:

Head of the 1st Department of Neurology, St. Anne's University Hospital Brno, Czech Republic
Researcher group leader senior, Behavioural and Social Neuroscience research group, CEITEC, Brno, Czech Republic

H index (WOS): 32

Publications (WOS): more than 300 original papers

Grants and funding: 11 completed and 5 currently ongoing grants in the role of principle investigator (AZV, GAČR)

Supervisor: 13 graduate PhD students, 2 Bc students, 4 Mgr students