



Brno Epilepsy Centre

/ First Department of Neurology
/ Faculty of Medicine / Masaryk University



RESEARCH GROUP CONTACT >>

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THEMATIC RESEARCH FOCUS >

RESEARCH AREA

Epileptology and clinical neurophysiology

EXCELLENCE

Intracerebral EEG data analysis, fMRI epilepsy research

MISSION

Top international workplace with a predominance of applied research attracting researchers and companies by force of its excellence.

DEVELOPED TECHNOLOGIES >

CONTENT OF RESEARCH

Centre provides comprehensive care for epileptic patients and performs excellent research in clinical epileptology and cognitive neuroscience.

- » Conservative treatment of epilepsy: basic and advanced diagnostics, antiepileptic monotherapy and polytherapy
- » Surgical treatment of epilepsy: diagnostics, full spectra of epilepsy surgery therapeutic interventions (resections, VNS, DBS, ...)
- » Intracerebral EEG recordings – ERPs, high-frequency oscillations; fMRI, MRS, EEG-fMRI, SISCOM, ...

MAIN CAPABILITIES

Basic research

Study of cognitive and active functions in the human brain

Application research + protection forms

- » description of new clinical entities and diagnostic procedures, particularly in the field of electrophysiology and neuro-imaging
- » Participation in European guidelines for the surgical treatment of epilepsy

FIELDS OF RESEARCH RESULTS APPLICATION

Medical treatment – methods and substances for the treatment of epilepsy (or other neurological diseases),
Medical equipment – production of devices (and their sub-components and software) for use in medicine (for example magnetic resonance)

ALUMNI PROFILE

Specialist in comprehensive epilepsy management, incl. epilepsy surgery

NUMBER OF RESEARCH POSITIONS >

SENIOR RESEARCH STAFF

11

JUNIOR RESEARCH POSITIONS (INCL. PH.D. STUDENTS)

16



KEY RESEARCH EQUIPMENT ↘

LIST OF DEVICES

- » Specialized epilepsy service
- » True Scan video-EEG system (Alien)
- » New EEG systems with high sampling rate (special usage of depth electrodes) - unique in the Czech Republic

BUDGET ↘

TOTAL (MIL. CZK/ MIL. EUR)

9 / 0.36

PART OF THE TOTAL BUDGET FROM PRIVATE RESOURCES (%)

5

PART OF THE TOTAL BUDGET FROM FOREIGN RESOURCES (%)

5

MAIN PROJECTS ↘

2009-2011: Novel Use of Magnetic Guidance and Catheter-Based Cerebral Venous Mapping to Treat Epilepsy and Stroke (project NS10099 financed by the Ministry of Health)

2005-2011: The Internal Organisation and Neurobiological Mechanisms of Functional CNS Systems under Normal and Pathological Conditions (institutional research plan MSM0021622404 financed by the Ministry of Education, Youth and Sports)

1999-2004: Plasticity of Regulatory Mechanisms of the Central Nervous Systems (institutional research plan MSM 141100001 financed by the Ministry of Education, Youth and Sports)

ACHIEVEMENTS

Publications in peer-reviewed and high impact journals (Epilepsia, Human Brain Mapping, NeuroImage, Epilepsy and Behavior, Seizure, Epileptic Disorder, etc.)

MAIN COLLABORATING PARTNERS ↘

COLLABORATION WITH ACADEMIC PARTNERS

- » Theoretical Neuroscience Group, CNRS & Université de la Méditerranée (Marseille, FR)
- » Institute of Scientific Instruments, Academy of Sciences of the Czech Republic (Brno, CZ)
- » Laboratory for Computational Neuroscience (Gif-sur-Yvette, FR)
- » Department of Biomedical Engineering, Brno University of Technology (Brno, CZ)
- » Institute of Psychology, Academy of Sciences of the Czech Republic (Brno, CZ)

COLLABORATION WITH COMPANIES

- » Medtronic (US)
- » Cardion (CZ)
- » UCB (BE)
- » Janssen-Cilag (CH)
- » GSK (GB)

EXPECTATIONS ↘

REQUIREMENTS

- » Utilization of research results
- » Development of cooperation with foreign companies

OFFERS

- » Participation in randomized control trials
- » Cooperation with companies
- » SEEG data and advanced MRI data collection
- » Opportunities for researchers from foreign research institutions