RESEARCH GROUP

Dementia (DMT)

PRINCIPAL INVESTIGATOR

MUDr. Jakub HORT, Ph.D.
Professor of the 2nd Faculty of Medicine, Charles University
E-mail: jakub.hort@fnusa.cz
Phone: (+420) 543 184 086

EDUCATION
1998: Ph.D. in Neuroscience, Charles University, Prague, Czech Republic
1994: MUDr./MD at Charles University, Prague, Czech Republic

TRAINING
2003: Research stay, Memory disorders unit, Massachusetts General Hospital, Harvard Medical School, Boston, USA

KEY INTERESTS
Alzheimer disease • Mild Cognitive Impairment • Subjective Cognitive Decline • Non-Alzheimer Dementia • Longitudinal Study • Czech Brain Ageing Study

RESEARCH FOCUS
The current research of Dementia Research Group is based on the Czech Brain Aging Study – a unique national, longitudinal prospective cohort based study – which has been established by Dementia Research Group. One of the aim is to study the early functional, metabolic and structural biomarkers of Alzheimer’s Disease and other dementias with focus on synucleinopathies, tauopathies and TDP-43-pathies analysis of miRNA from cerebrospinal fluid. The Dementia Research Group also focuses on search for novel neurochemical and genetic biomarkers in blood and CSF as well as structural, metabolic and functional biomarkers on Magnetic Resonance Imaging in humans. These studies will be complemented by several animal studies with emphasis on translational aspect of the used methodology. The research group consists of two core synchronized sites – Center for Memory Disorders, St. Anne’s University Hospital Brno and Cognitive Center, Motol University Hospital, Prague.

RESEARCH OBJECTIVES
Evaluation of neuropsychological and spatial navigation tests as an early markers of neurodegeneration.
Defining structural, metabolic and functional biomarkers on MRI and PET in humans.
Exploring epidemiological risk factors in primary and secondary prevention of dementia.
TOP PUBLICATIONS


BEST RESULTS

- Database REDCap of Czech Brain Ageing Study with data describing the changes in the structure and metabolism of the brain over time in healthy elderly patients, in patients with MCI, and AD.

- Bank of biological samples for genetic and biochemical analysis in the future for individuals who became ill with AD.

- Cognitive data repository using specific neuropsychology protocols and tools for testing hippocampus-related memory impairment as an early specific sign of AD.

- MRI database for the longitudinal study of brain atrophy in patients with cognitive impairment.

TECHNOLOGICAL EQUIPMENT

- Blue Velvet Arena – neuropsychology, spatial navigation assessment.

- 3T MRI – multimodal brain imaging, diffusion tensor imaging, functional magnetic resonance imaging (fMRI).

OFFERED SERVICES AND EXPERTISE

- Translational research, data analysis, longitudinal study, biomarkers of neurodegenerative disorders, neuropsychology, neuroimaging, cerebrospinal fluid analysis, blood biomarkers, clinical trials.

MAIN PARTNERS AND COLLABORATING INSTITUTIONS

- University of South Florida, Tampa, FL, USA
- Harvard University, Cambridge, MA, USA
- Nanjing Drum Tower Hospital, Nanjing, China