

IN VIVO MEASUREMENTS OF NEUROTRANSMITTER CONCENTRATIONS IN NERVOUS
SYSTEM DISEASES

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The goal of the project is preparing the measurement procedures and analyzes for study neurotransmitter concentrations (Glu, Gln and GABA) in nervous system diseases. Magnetic resonance spectroscopy in vivo will be applied to perform these measurements using proton and carbon 13C with DNP hyperpolarization.

Procedures will be applied mainly to central nervous system diseases. In many neurological diseases the main problem is connected with neurotransmitters disturbances. These in turn evoke clinical problems.

Project include:

- sequences preparation for proton MRS 1D and CSI examinations suitable for neurotransmitter concentration measurements using the 3T MRI (CNSLab),
- testing them in clinical application in several disorders,
- results analysis and presenting them in physician suitable form,
- preparing of procedure of carbon spectra measurements (DNP) and preliminary clinical studies.