Project summary

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Predicting TMS treatment outcome in treatment resistant depression based on biological and clinical phenotypes -a 7 Tesla MRI tractography and fMRI study

Depression is the major cause of lost years due to disability according to the World Health Organization (WHO). Even though effective treatments exist, about one third of patients with depression does not respond to adequate treatment of pharmacotherapy and psychotherapy. Non-invasive brain stimulation therapies (e.g. transcranial magnetic stimulation (TMS) and electroconvulsive therapy (ECT)) pose a promising alternative treatment regimen for these patients with treatment resistant depression (TRD). The aim of my research is to improve our understanding of the link between individual characteristics of patients with TRD (e.g. specific clinical syndromes such as anhedonia, or attachment experiences), clinical outcome following brain stimulation therapies, and brain-stimulation induced changes of brain structure and function. This will contribute to our understanding of remission plasticity and may pave the way to identify subgroups that will respond to specific brain stimulation therapies. I use multimodal magnetic resonance imaging (MRI); however, there is a methodological focus on the investigation of networks of the brain using diffusion MRI-based tractography. The aim of the funded research project is to advance our understanding of TMS treatment in depression using high-resolution 7-Tesla MRI.

Web link of the research group:
[Research: Group Bracht - Universitäre Psychiatrische Dienste (UPD) (unibe.ch)](#)