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The goal of this project is to investigate transcription factors that could influence epilepsy induced alterations in circadian gene expression in the hippocampus. Our hypothesis is that orchestrated oscillations in expression of gene ensembles and changes in their expression patterns are governed by transcription factors.

We plan to characterize the role of transcription factors in circadian oscillations of gene expression in the hippocampus, including elucidation of binding of our candidate transcription factor to the promoters of its presumed target genes, as well as further *in silico* analysis of gene promoters and validation of *in silico* results.

Results obtained within this project will provide new information on the transcriptional regulation of circadian changes in gene expression in the hippocampus. Description of such changes would have considerable impact on design of the experiments dealing with gene expression in any area of neuroscience and possibly would influence the recommendations for antiepileptic treatment in the future.