

Project 1.11. To investigate the interplay between metabolic and epigenetic factors in pathogenesis and inheritance of neuropsychiatric disorders

Supervisor: dr Ali Jawaid

Laboratory: Laboratory for Translational Research in Neuropsychiatric Disorders

WWW: <https://www.nencki.edu.pl/laboratories/laboratory-of-translational-research-in-neuropsychiatric-disorders/>

Background:

Jawaid lab (Translational Research in Neuropsychiatric Disorders; TREND) investigates molecular mechanisms underlying the pathogenesis and inheritance of neuropsychiatric disorders with a specific focus on epigenetics and metabolism. This theme is backed by strong clinical and translational research showing a disease modifying effect of metabolic perturbations in neurodegenerative disorders ALS and FTL (reviewed in Jawaid et al. Molecular Neurodegeneration 2018), role of miRNAs in memory impairment in neurodegenerative disorders (Jawaid et al. Nature Communication 2016, Jawaid et al. Molecular Neurobiology 2018), role of metabolic and microglial sensing in Alzheimer disease (Paolicelli, Jawaid et al. Neuron 2017), and a role of brain/circulating microRNAs and lipid metabolites in epigenetic inheritance of the effects of early life trauma (Gapp, Jawaid et al. Nature Neuroscience 2014, Steenwyk et al. EMBO Journal 2020, Jawaid et al. medrxiv 2020)

The proposed projects include; investigating for a role of lipid metabolism and circulating miRNAs as mediators of the long-term effects of early life trauma including inter-generational transmission of symptoms. The candidates are welcomed to propose modifications to these projects or propose new projects under the same theme.

Aim:

To investigate the interplay between metabolic and epigenetic factors in pathogenesis and inheritance of neuropsychiatric disorders.

Requirements:

- strong interest in the brain research and neuroepigenetics
- M.Sc. degree, or equivalent, in molecular biology, biochemistry, biotechnology, physics/biophysics, biology, psychology, medical or veterinary sciences
- exceptional motivation for the scientific research (demonstrated via publications, references of the candidate's thesis tutor)
- proficiency in English

Prior experience with in vivo mouse models or iPSCs/ 3D cultures will be advantageous but not necessary.