

Scientific report for the research project –PCE-56-2022

For the period January- December 2023

Title: STUDY OF MECHANISMS UNDERLYING THE PROTECTIVE EFFECTS OF ARTEMISININS IN ALZHEIMER'S DISEASE WITH SPECIAL REFERENCE TO ADULT HIPPOCAMPAL NEUROGENESIS

Cod project: PN-III-P4-PCE-2021-1089

In the period January-December 2023 the following activities were undertaken within the project:

- The work plan and strategy have been finalized for the second and third phase of the project
- The appropriate procedures have been undertaken for the acquisition of laboratory consumable materials, substances, reagents (e.g. antibodies, reagents for biochemical and molecular biological analyses)
- Experimental animals recruited in experimental groups along 2022 and the first months of 2023 (WT, APP/PS1 with or without artesunate, males) were sacrificed, biological material (brain, hippocampus, blood, CSF) collected and processed.
- Perfusion fixed frozen tissue sections were co-immunolabeled for AHN markers and GABAergic system markers (e.g. parvalbumin, GAD67) as well as connexins to study correlations to electric synapses.
- Series of confocal images has been acquired and digital image analysis is partially done or is ongoing.
- To complement experimental groups a new time schedule for animal breeding has been developed and breeding has been started. The appropriate procedures have been done to purchase the special animal food with artemisinins.
- Research data have been presented at two scientific meetings in Germany and a manuscript has been edited and published:

Kuhse J, Groeneweg F, Kins S, Gorgas K, Nawrotzki R, Kirsch J, Kiss E. Loss of Extrasynaptic Inhibitory Glycine Receptors in the Hippocampus of an AD Mouse Model Is Restored by Treatment with Artesunate. **Int J Mol Sci.** 2023 Feb 27;24(5):4623. doi: 10.3390/ijms24054623

Project leader

Assoc. Prof. Dr. Eva Kiss

