The glymphatic system was described for the first time as a mechanism for clearance of brain parenchyma from waste by Iliff et al. in 2012 Anatomically, the glymphatic system consists of perivascular spaces (spaces limited by endothelial cells of blood vessels and perivascular astrocytes) and aquaporin 4-expressing astrocytes. Functionally, it is a brain equivalent of the peripheral lymphatic system. In general, the glymphatic system enables directed fluid movements trough the brain parenchyma. The fluid movement is critically dependent on polarized expression of the water channel aquaporin 4 (AQP4) in astrocytes and is regulated by sleep, anesthesia and circadian rhythm. Disfunctions of the glymphatic system have been shown in several human conditions including hydrocephalus, Alzheimer's disease, Parkinson's disease, dementia, multiple sclerosis, traumatic brain injury, stroke, sleep disturbances or aging. There is very little information on the glymphatic system in acquired epilepsy and there are no studies on the glymphatic system *per se* in experimental models of epilepsy.

The aim of this project is to test the hypothesis that the dysfunction of the glymphatic system and resulting impairment of the brain parenchyma clearance is involved in the pathogenesis of acquired epilepsy. For this purpose we plan to: (i) describe the functioning of the glymphatic system in the course of epileptogenesis in the experimental model; (ii) evaluate the seizure threshold upon manipulation of the efficiency of glymphatic system; and (iii) evaluate function of the glymphatic system following antiepileptic treatment.