

Pathology of the ascending arousal system in temporal lobe epilepsy (additional funding for refugee scholars)

Initiative: Freigeist-Fellowships

Bewilligung: 03.12.2018

Laufzeit: 2 Jahre

Temporal lobe epilepsy is a prevalent neurological disorder that is characterized by reoccurring seizures - network events during which neurons discharge excessively. Previous experiments discovered a link between sleep/wake transitions and seizures in an animal model of temporal lobe epilepsy (Ewell et al., J. Neurosci, 2015). Transitions between sleep states and wakefulness are regulated by brain-stem structures which have widespread connections with the rest of the brain. It is hypothesized that in temporal lobe epilepsy, pathological changes occur in the brain-stem modulatory circuits that critically regulate sleep/wake states. Such pathological changes in brain-stem structures confer misregulated brain state changes that in some cases cause an increased propensity for seizures. An animal model of temporal lobe epilepsy will be used to examine the histopathology of brain-stem structures at several time-points during disease progression. Based on these data a more specific hypothesis about the role of brain-stem pathology in seizure generation will be developed.

Projektbeteiligte

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