Master Thesis Opportunity

A novel regenerative therapy combined with neurorehabilitation in traumatic brain injury (TBI)

Institute for Regenerative Medicince, Campus Schlieren, University of Zurich

Huimin Shan, Prof. Martin E. Schwab

Project Background

Traumatic brain injury (TBI) is caused by an external force acting on an individual's head and brain, leading to destruction of brain tissue and permanent or temporary impairment of cognitive, physical, and psychosocial functions. Pathophysiologically, the cellular perturbations caused by the primary, mechanical injury can induce secondary insults of TBI which further damage neurons, axons, dendrites and blood vessels in a focal, multifocal, or diffuse pattern by a dynamic series of neurotoxicity, vascular dysfunction, glial scarring, neuroinflammation and demyelination. Nogo-A is a membrane protein found, among others, in the brain and spinal cord, and it is one of the most potent known neurite outgrowth inhibitors present in the central nervous system. According to previous studies of our laboratory and published reports form several other groups, neutralization or blockade of Nogo-A or its corresponding receptors leads to outgrowth of damaged and also intact nerve fibers after brain or spinal cord injuries, stroke and other neurological disorders. In this project, the key question is whether suppression of Nogo-A can enhance functional/behavioral and structural/anatomical recovery by anti-Nogo-A antibody treatment compared to control antibody treatment.

Position Description

We are looking for a highly motivated master student for master thesis lasts for 6-9 months (starting time is negotiable). The student will join a project about a novel regenerative therapy combined with neurorehabilitation in traumatic brain injury in mice.

The student will work on the collection and analysis of mice behavioral data, immunofluorescence staining, neuroimaging and analysis in mouse central nervous system (CNS) tissue. In addition, you will have an opportunity to conduct animal experiments with us (License can be obtained in a 5-day course by LTK) if you are interested in that.

Keywords

Traumatic brain injury, Neural Regeneration, immunohistology, Neurobehavioral assessments

Education / Requirements

- Background in Biology, Biomedicine or Neuroscience
- Good knowledge of English
- A keen interest in working with animal experiments

Contact

Huimin Shan, email address: huimin.shan@uzh.ch; Martin E. Schwab, email address: schwab@irem.uzh.ch

Link

https://www.irem.uzh.ch/en/research/Group-M.-Schwab.html