Understanding and harnessing post-stroke brain plasticity: a translational perspective

Stroke is one of the main causes of death and disability worldwide. Brain neurons rapidly die when lacking oxygen and nutrients following reductions in blood supply that result in cerebral ischemia. Ischemic stroke thus immediately leads to a loss of various functions depending on the lesioned brain area. While thrombolysis, as an acute treatment, has tremendously improved ischemic stroke outcomes in last decades, its application remains limited by time constraints, leaving a vast majority of patients with important functional sequels. Notably based on our own translational research in the field, we will discuss ischemic stroke pathogenesis, its time-dependent dynamics and how spontaneous and training-induced brain plasticity may help predicting and enhancing post-stroke recovery.