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**Regenerative rehabilitation for spinal cord Injury – strategies to optimize rehabilitative treatment****Syoichi Tashiro***Keio University School of Medicine, Japan*

Spinal cord injury (SCI) results in various neurological sequelae in the motor, sensory, and autonomic systems. While stem cell-based regenerative therapy has opened an avenue for functional recovery of patients, it gradually turned out that stem cell therapy is not omnipotent especially in the treatment of chronically injured spinal cord. Variety of combination therapies including rehabilitative intervention is being investigated. Rehabilitation upon SCI in preclinical studies has recently attracted more attention because it is safe, induces neuronal plasticity involving transplanted stem cells and sensorimotor circuits, and is routinely implemented in human clinics. Combined rehabilitation to elicit synergistic effects in regenerative treatment is called Regenerative Rehabilitation which is a relatively new principle presented by Rando and Ambrosio in 2010. Whereas rehabilitation methods is often chosen without consideration upon scientific backgrounds in the preclinical studies of stem cell therapy, it can hinder the optimization of rehabilitative treatment. Now the details of rehabilitation; namely, the modality, the intensity and duration, the mechanisms, nor the purpose, should be more structurally unveiled, and regenerative rehabilitation should be more organized and integrated into the primary treatments. In this talk, I try to summarize preclinical regenerative rehabilitation studies according to the effector, site, and mechanism. In addition, I would discuss what is needed next to develop regenerative rehabilitation for SCI.

**Biography**

Syoichi Tashiro is a Japanese board-certified Rehabilitation Physician, Instructor. He has received his PhD from Keio University in 2015. His research interests are Regenerative rehabilitation, Neurorehabilitation, Precision rehabilitation with Non-invasive Transcranial Brain Stimulation and Robotic devices, Cancer Rehabilitation and Disaster rehabilitation. He conducts his postdoctoral studies from Keio University School of Medicine, Japan, Kyorin University School of Medicine, Japan, and Danish Research Centre for Magnetic Resonance, Copenhagen University Hospital Hvidovre, and Denmark. He has published more than 20 papers in reputed journals