Abstract Information

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Participation :	symposium
Title of the Symposium :	Brain Pathologies - Neuron and Glia Diversity in Regeneration
Category :	Academic/Researcher
Thematic Area :	Neuroanatomy, Structural, and Functional Connectomics
Title :	Exploring glial and immune mechanisms in spinal motoneuron regeneration: insights from the ventral root crush model

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Abstract :

In the context of motor system repair, the ventral root crush (VRC) model has emerged as a valuable experimental tool that provides a controlled and reproducible platform to selectively study the degenerative and regenerative dynamics of motoneurons, and their interactions with glial cells. Herein, the time course of motoneuron degeneration and microglial and astroglial responses after VRC will be demonstrated. Furthermore, the influence of immune molecules, such as MHC-I, TLR2, and TLR4, in the context of motoneuron degeneration and glial responses will be presented. In addition, the VRC model will be explored as a preclinical platform for testing neuroprotective and pro-regenerative therapies, with results from stem cell-based interventions and pharmacological modulation. By elucidating neuron-glia interactions and therapeutic strategies, the VRC model bridges basic research and clinical applications, allowing insights into the mechanisms underlying neuronal and glial diversity in regeneration.