

## Extended Abstract

**Free Mesenchymal Stem Cell-Associated Exosomes Induce Better Neuroregeneration than Mesenchymal Stem Cells and Neural Differentiated Mesenchymal Stem Cells in Canine Model of Spinal Cord Injury**

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**Aim:** The aim of this study is to compare spinal cord regeneration following mesenchymal stem cell injection, neural-differentiated mesenchymal stem cells injection with that following cell free exosome injection.

**Method:** 20 dogs were randomly divided into Sham group (dorsal laminectomy only) and experimental group which were subjected to a clipping contusion of the spinal cord. One week after SCI, GFP labeled BMSCs, NSCs and MSCs-Exo were transplanted intrathecally to investigate the safety and efficacy of each one in the therapy of SCI. The effects of the transplanted cells in dogs with SCI were determined using functional neurological scoring, histopathological and immunohistochemical methods.

**Results:** Our data demonstrate different therapeutic approaches for SCI as BMSCs, NSCs and MSCs-Exo enhanced remyelination and augmented neural regeneration, resulting in improved neurological functions. Special attention is paid to MSCs-Exo as they showed the marked improvement in the grey and white matter structure.

**Conclusion:** MSCs-Exosomes can be successfully used as a promising treatment for spinal cord regeneration.