

## Spinal cord pathology during chronic exposure to MPTP in mice

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MPTP (1-methyl 4-phenyl 1,2,3,6-tetrahydro-pyridin) treatment is a validated toxic model to produce experimental parkinsonism. Chronic exposure to little amounts of MPTP has been reported to reproduce neuropathological features characterizing dopaminergic neurons in Parkinson disease (1). Recent studies by our group have found that MPTP, besides dopaminergic neurons, affects also spinal motor neurons (2), thus reproducing also the neuropathology of spinal cord in Parkinson's disease.

The aim of the present study is to investigate, through immune-histochemistry, the involvement of spinal motor neurons after chronic administration of MPTP.

Chronic MPTP treatment is able to induce motor neurons loss in the lumbar spinal cord. Increased immune-reactivity of the autophagy protein MAP LC3 $\beta$  is detectable in motor neurons which indicates the activation of autophagy. Immune-staining for alpha-synuclein, the hallmark protein for Parkinson's disease, was altered in spinal motor neurons of MPTP treated mice, as detected by two novel homemade monoclonal antibodies. Furthermore, immunohistochemical alterations have been detected in the Renshaw cells and in tyrosine-hydroxylase-containing axons in line with the alterations of noradrenergic projections in Parkinson's disease (3).

Our results suggest that spinal cord may contribute to motor symptoms occurring in Parkinson's disease.

### References

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### Keywords

Alpha-synuclein, spinal cord, Parkinson's disease