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## Trx-1 ameliorates learning and memory deficits in MPTP-induced Parkinson's disease model in mice

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### Abstract

Parkinson's disease (PD) is characterized by a progressive loss of dopaminergic neurons in the substantia nigra (SNpc), characteristic motor symptoms and cognitive impairment. Thioredoxin-1 (Trx-1) is a redox protein and protects neurons from various injuries. Our previous study has shown that Trx-1 overexpression attenuates movement disorder in PD. However, whether Trx-1 ameliorates cognitive deficits in PD is still unknown. In the present study, we investigated the effects of Trx-1 on learning and memory in the 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP)-induced PD model in mice. We demonstrated that deficits in learning and memory were induced by MPTP in mice through the elevated plus-maze test. We found that the retention transfer latency time was shortened, escape latency was decreased and the number of platform crossings was increased in the Morris water

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