Parkinson's Disease

MPTP Induced Mouse Model

Mice that receive acute, chronic or subchronic administration of the pyridine toxin 1-methyl-4phenyl-1,2,3,6-tetrahydropyridine (MPTP) selectively lose significant numbers of dopaminergic neurons in two midbrain structures, the substantia nigra (SN) and the ventral tegmental area (VTA).

Loss of dopaminergic cells in SN mimic the clinical condition in PD and leads to motor dysfunction. The dopaminergic loss in mouse VTA is of unknown relevance to PD, but may contribute to the cognitive deficits of PD, because of these neurons' projections to the frontal cortex.

- Activity Hyperactivity Distance 200 80 seconds distance moved in meter 70active time in seconds 50 150 60-.<u>=</u> 40 50 ** time 100 40 30hyperactive 30 20-50 20 10 10 ٥ MPTP MPTP sham sham sham MPTP
- Loss of dopaminergic neurons
 Motor deficits in behavioral read outs

Figure 1: Open Field test. Animals were injected with 4 x 20 mg/kg MPTP or vehicle. Two days after treatment, animals were tested in the open field test for activity, hyperactivity and distance travelled. n = 9 - 10; unpaired t-test; Mean + SEM. **p<0.01; ***p<0.001.



Figure 2: DOPAC and HVA measurement. Animals were injected with 4 x 20 mg/kg MPTP or vehicle. Six days after treatment, animals were sacrificed and the caudate putamen analyzed for DOPAC and HVA levels. n = 3 - 5; unpaired t-test; Mean + SEM. ***p<0.001.

Meredith GE, Rademacher DJ. MPTP mouse models of Parkinson's disease: an update. J Parkinsons Dis. 2011;1(1):19-33.



Figure 3. Tyrosine hydroxylase (TH) quantification in the substantia nigra after MPTP lesion. Animals were injected with 4 x 20 mg/kg MPTP or vehicle. Six days after treatment, sacrificed animals were and the striatum analyzed for TH levels. n = 3 - 5; unpaired t-test; Mean + SEM. *p<0.05.



QPS Austria

Parkring 12, 8074 Grambach, Austria Email office-austria@qps.com Website www.qpsneuro.com Tel +43 316 258 111

QPS LLC

3 Innovation Way, Suite 240 Newark, DE 19711, USA Email info@qps.com Website www.qps.com