

MPTP mouse-model of Parkinson's disease

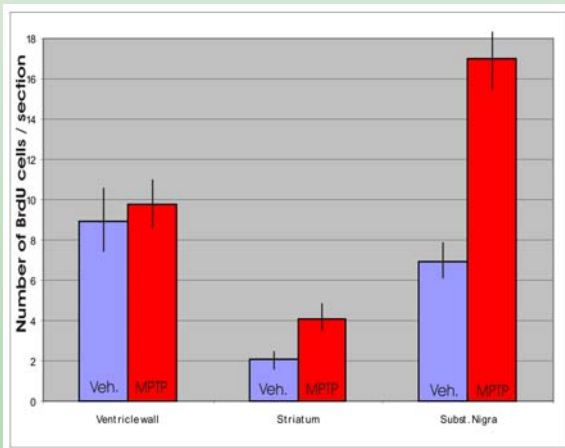
Scope of application

- Testing neuroprotective drugs on substantia nigra (SN) via quantification of Tyrosine hydroxylase+ (TH+) neurons
- Testing effects of compounds on stem cell proliferation and neurogenesis in a model of Parkinson's disease

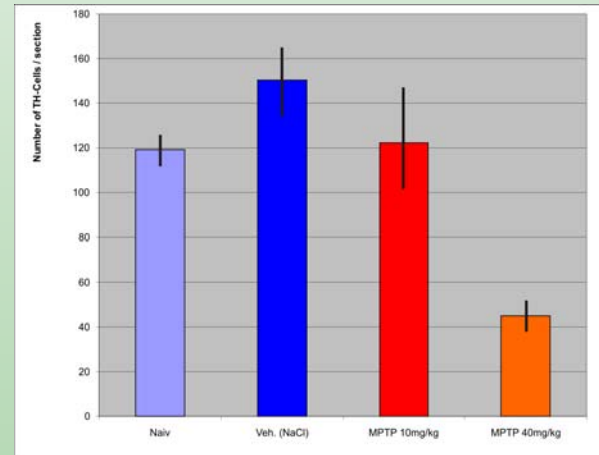
Model

Selective cell death of dopaminergic neurones is induced by application of the meperidine-like drug MPTP (1-methyl-4-phenyl-1,2,3,6-tetra-hydropyridine). Neuroprotection is characterized via quantification of the TH immune response of the remaining dopaminergic neurones in the substantia nigra.

Stimulating effects of growth factors on proliferation and neurogenesis after this damage can be tested. Newborn cells are marked with BrdU via intraperitoneal injection. After decapitation of animals at defined time-points BrdU positive cells are identified immunohistochemically. Quantitative evaluation of BrdU positive cells is performed by using morphometry and cell counting in defined brain areas (e.g. substantia nigra and striatum)



Quantification of cell proliferation (BrdU+ cells) in MPTP treated and control groups (animals decapitated on day 10 after the first application)



Quantification of neuronal damage: TH+ cells in the subst. nigra of MPTP treated and control groups

