

## REVIEW

# ENDOGENOUS RISK FACTORS IN PARKINSON'S DISEASE: DOPAMINE AND TETRAHYDROISOQUINOLINES<sup>1</sup>

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The cause of chronic nigral cell death in Parkinson's disease (PD) and the underlying mechanisms remain elusive. The selective action of exogenous and endogenous neurotoxic substances can provide partial explanation of these processes. 1-Methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP) is an exogenous neurotoxin producing parkinsonism in humans, monkeys and various animals as the result of MAO<sub>B</sub>-catalyzed conversion of it to the 1-methyl-4-phenyl-pyridinium ion (MPP<sup>+</sup>), which selectively kills the nigrostriatal dopaminergic neurons. On the other hand, various isoquinoline derivatives were found in the brain, and they are considered to be the endogenous neurotoxins with neurochemical properties similar to those of MPTP, which cause PD. Among them, 1,2,3,4-tetrahydroisoquinoline (TIQ), 1-benzyl-TIQ, and 1-methyl-5,6-dihydroxy-TIQ (salsolinol) have the most potent neurotoxic action. Since PD is a slowly progressing neurodegenerative disease, it has been suggested that it could be connected with excitotoxicity and apoptosis. Therapeutic strategies should be focused on the search for the drugs exhibiting antiapoptotic potential such as: antioxidants, MAO<sub>B</sub> inhibitors, dopaminergic drugs and free radical scavengers.

**Key words:** *Parkinson's disease, dopamine and apoptosis, MPTP, endogenous neurotoxins, tetrahydroisoquinoline derivatives, neuroprotection*

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