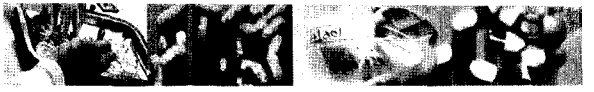

Neuroprotection in Parkinson's Disease

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Parkinson's disease is a common neurodegenerative disease, affecting about 1 in 800 of the general population world wide. Its incidence and prevalence increase with age, and is associated with significant disability. The burden of care on the family and the cost to society is considerable. The normal adult human brain has about 450,000 nigrostriatal dopamine producing neurons on either side. The onset of PD symptoms begins when 50% of these neurons and 80% striatal dopamine production are lost. The preclinical phase of PD may precede symptom-onset by seven years. There is still no effective therapy to either halt or reverse the neuronal degeneration. Existing drug treatment is associated with a gradual loss of efficacy and long-term side effects. Although stereotactic deep brain stimulation can relieve some motor symptoms, other motor and non-dopaminergic features such as dementia, psychosis are not relieved. Hence, the search for potential neuroprotective agents and pathways for PD is an extremely worthy aim. If neuroprotection can be achieved even in partially delaying neuronal death, then the onset of parkinsonian symptoms may be delayed past the patients' natural life expectancy. However, questions remain as to: a) what compounds have neuroprotective effects, b) whether they are safe for use in humans, c) their long term side effects, whether they are truly modifying the course of the disease, or providing symptomatic effects, or both, d) what markers would best reflect efficacy of neuroprotection *invivo*, and e) what factors are we protecting against?