

Trophic factors for Parkinson's Disease; facts and dreams

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Since the discovery of the trophic effects of nerve growth factor by Nobel laureate Rita Levi-Montalchini in the 1970's numerous studies have demonstrated that many trophic factors can prevent neuronal degeneration and increase the function of both intact and degenerating nerve cells. Moreover trophic factors show great promise in laboratory studies as potential therapies for PD. However multiple double-blind clinical trials have failed to show benefits in comparison to a placebo control. With respect to developing a therapy for PD patients, the GDNF family of ligands (GFLs) that include glial cell-derived neurotrophic factor (GDNF) and neurturin (NRTN) have received the most attention. Lin (1993) first discovered GDNF and demonstrated that it supports the viability of dopaminergic midbrain neurons in tissue culture. We will review in our presentation the scientific rationale for testing trophic factors in PD, the result of the different clinical trials that have been performed and the possible explanations for these failed outcomes. Future directions will be also considered