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Herbal formula TL001 attenuates dopaminergic neurodegeneration in Parkinson's disease

The herbal remedy is commonly used in traditional Chinese medicine to treat diseases characterized by causing oxidative stress including inflammatory diseases, diabetes mellitus and neurodegenerative diseases. We currently reported that herbal remedy TL001, ameliorated the Parkinsonian motor deficit and protected the nigrostriatal tract from 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP)-induced Parkinson disease (PD) mice. The dopaminergic degeneration in the substantia nigra pars compacta (SNc) and striatum (ST) were analyzed by immunohistochemistry while the monoamine oxidase-B inhibitor, Selegiline, as positive control drug for both neuroprotection and correction of motor deficits. Animals were sacrificed and the brain and muscle slices were stained for dopaminergic 1, 5 receptors. Muscle mitochondria biogenesis parameter (SIRT1, PGC-1 and NRf2) and mRNA level of neurotransmitters (dopamine, norepinephrine, serotonin, gamma-aminobutyric acid and glutamate) also evaluations. In the MPTP-induced animal model of Parkinson's disease, TL001 time-dependently improved motor functions and increased both of **α**7 nicotinic acetylcholine receptors and tyrosine hydroxylase-positive immunoreactive cells in the SNc and ST areas and the abatement of proinflammatory cytokines compared to the MPTP mice. In addition, TL001 interventions also have produced positive results in PD patients from behavioral assessment. These findings suggest that LT001 may be used as an adjunct therapy to enhance the efficacy of L-dopa and alleviate its adverse effects in patients with PD. Thus, TL001 has potential to improve the benefits of dopaminergic therapy in Parkinson's disease.

Biography

Tzung-Yan Lee is an Associate Professor in Graduate Institute of Traditional Chinese Medicine, Chang Gung University. His research focusses on hypoxia signaling in hepatic fibrosis and new herbal remedy for liver diseases and to elucidate the molecular mechanism of fatty liver in obesity.

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