Hong Jiang et al., J Alzheimers Dis Parkinsonism 2016, 6:6(Suppl)
http://dx.doi.org/10.4172/2161-0460.C1.024

Nesfatin-1 protects dopaminergic neurons against MPTP neurotoxicity through C-Raf/ERK1/2 dependent anti-apoptotic pathway

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Some brain-gut peptides have been reported to have a close relationship with the central dopamine system. Nesfatin-1, a satiety brain-gut peptides co-expressed with ghrelin in X/A like endocrine cells in the gastric glands, has been reported exerted neuroprotective efficacy in center neurons system. Here we defined the neuroprotective effects of nesfatin-1 against MPTP-induced dopaminergic neuron degeneration *in vivo* and MPP+-induced cytotoxicity *in vitro* with its anti-apoptotic action via ameliorating mitochondrial dysfunction by activation of C-Raf/ERK1/2 pathway. In MES23.5 dopamingernic cells, nesfatin-1 pretreatment antagonized MPP+-induced mitochondrial dysfunction related apoptosis cascades including ΔΨm collapse, mitochondrion Cyt C releasing, caspase-3 activation and morphological changes of nuclei. This protective effect was abolished by selective inhibitor of C-Raf and ERK1/2. In C56BL/6 mouse, intracerebroventricular nesfatin-1 pretreatment attenuated MPTP-induced dopaminergic neuronal degeneration in the SNpc, dopaminergic fibers depletion, dopamine and its metabolites contents depletion in the striatum. Our data suggested nesfatin-1 had the potential to be considered as an agent for therapy of Parkinson's disease.

Biography

Hong Jiang has completed her PhD from Qingdao University and Post-doctoral studies from Sun Health Research Institute. She is the Vice Dean, Medical College of Qingdao University. She has published more than 50 papers in reputed journals and has been serving as an Editorial Board Member of *Current Alzheimer's Disease*.

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