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ASIA EDITION

New SR Exendin-4 Formulation proves effective against Parkinson's

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Peptron has developed a novel form of SR-exenatide that effectively crosses the blood-brain barrier and provides sustained release of the neuroprotective peptide



Peptron Inc. a Korean-based public pharmaceutical company that focuses on peptide engineering and developing sustained-release medicine technology, announced publication of preclinical data from a team of international scientists showing a new sustained-release (SR) exendin-4 formulation reduces dopaminergic neurodegeneration in a 6-hydroxydopamine rat model of Parkinson's disease.

The development of exendin-4 to treat Parkinson's disease is limited by the medication's short half-life. Exendin-4, a hormone originally discovered in the saliva of the Gila monster, is a glucagon-like peptide-1 (GLP-1) receptor agonist.

The synthetic version of the hormone is exenatide (marketed as Byetta®, Bydureon®). Peptron has developed a novel form of SR-exenatide that effectively crosses the blood-brain barrier and provides sustained release of the neuroprotective peptide.

The research, which was undertaken in collaboration with scientists at Tawain's National Health Research Institutes, the U.S. National Institute of Aging, and Case Western Reserve University School of Medicine.

Parkinson's disease, a chronic and progressive movement disorder, is caused by the predominate loss of dopamine-producing ("dopaminergic") neurons in an area of the brain called substantia nigra. It is the second most common neurodegenerative disease, afflicting nearly one million people in the United States.

This research builds on a number of other studies that have proposed GLP-1 receptor agonists as a new treatment for neurodegenerative diseases including Parkinson's disease, Alzheimer's disease, Huntington's disease, traumatic brain injury, stroke, and peripheral neuropathy.

Peptron recently expanded an exclusive license of intellectual property from the U.S. National Institutes of Health that covers the delivery and use of SR-exenatide for the treatment of neurodegenerative disorders. In addition, the company has begun

operations of a GMP manufacturing facility to produce SR-exenatide for a Phase 2 clinical trial in Parkinson's disease and for further evaluation of SR-exenatide for the treatment of Alzheimer's disease and related disorders.

The study first determined a clinically relevant efficacious dose of Peptron's SR-exenatide (PT302). A single subcutaneous administration of PT-302 resulted in sustained elevations of exendin-4 in plasma for more than 20 days in adult rats.

Post-lesioning treatment of PT302 significantly increased brain tyrosine hydroxylase immunoreactivity (TH-IR), a measure of dopaminergic neurons, in the lesioned substantia nigra and striatum. There was a significant correlation between plasma exendin-4 levels and TH-IR in the substantia nigra and striatum on the lesioned side.

The data suggests that post-treatment with PT302 at a clinically relevant dose provides long-lasting exendin-4 release and reduces neurodegeneration of nigrostriatal dopaminergic neurons in a 6-hydroxydopamine rat model of Parkinson's disease.