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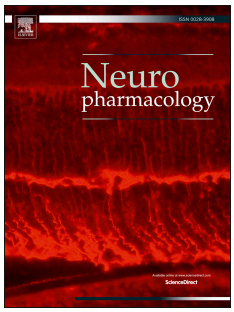

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Protective effects of the GLP-1 mimetic exendin-4 in Parkinson's disease

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Abstract

There is increasing interest in the potential role of glucagon-like peptide-1 (GLP-1) receptor agonists as neuroprotective treatments in neurodegenerative diseases including Parkinson's disease following the publication of the results of the Exenatide-PD trial. Of the current GLP-1 receptor agonists already licensed to treat Type 2 diabetes several including exenatide, liraglutide and lixisenatide are the subject of ongoing clinical trials in PD. The underlying rationale for using drugs licensed and effective for T2DM in PD patients therefore needs to be scrutinized, and the results obtained to date critically reviewed. We review the relationship between insulin resistance and Parkinson's disease, the implications on pathogenesis and the efforts to reposition GLP-1 agonists as potential treatments for Parkinson's disease and give an overview of the pre-clinical and clinical data supporting the use of exenatide in Parkinson's disease with a discussion regarding possible mechanisms of action.