

OPEN PEER REVIEW REPORT 1

Name of journal: Neural Regeneration Research

Manuscript NO: NRR-D-21-00505

Title: Neuroprotective effects of natural sourced bioactive polysaccharides: An update

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COMMENTS TO AUTHORS

This is a well-written article reviewing the neuroprotective effects of various polysaccharides from plants and other natural sources. This is an important topic as these neuroprotective agents have a potential therapeutic value in the prevention and treatment of various neurodegenerative diseases.

Many of the neuroprotective actions of these complex polysaccharides have been studied in vitro using various neuronal cells in cell culture. They are directly added to the culture with the assumption that they act directly (Figure). Certainly, these polysaccharides have beneficial effects when administered to animals. However, this brings some challenging questions: do these polysaccharides hydrolyze in the intestinal tract? Do they absorb as intact molecules? If they are absorbed, do they have a sufficient half-life in the plasma? Can they cross the blood-brain barrier? It is becoming clear that some neuroprotective agents may produce some beneficial effects on the intestinal microbiota, producing indirect neuroprotective actions. At the end of the article, the authors very briefly address gaps in knowledge. However, reviewing any literature available on these pharmacological aspects will certainly clarify whether they have different mechanisms of action in vivo entirely different from those observed in vitro.