Reviewer's report

Title: Potentiation of neuritogenic activity of medicinal mushrooms in rat pheochromocytoma cells

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Reviewer: ling cheng

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In this article, the authors demonstrated that the aqueous extracts of Ganoderma lucidum, G. neo-japonicum and G. frondosa may contain NGF-like bioactive compounds for maintaining and regenerating the neuronal communications network without cytotoxic effect. The MEK/ERK1/2 and PI3K/Akt signaling pathways may play a role in the neuritogenic activity of the mushrooms.

The authors not only used MTT assay to examine the Cytotoxic effects towards rat pheochromocytoma(PC-12) cells and neurite outgrowth stimulation assay to assess the potentiation of neuritogenic activity, but also used specific pharmacological inhibitors to exam involvement of cellular signaling pathways.In addition,immunofluorescence staining of the neurofilament was applied to analyze the alteration of neuronal morphology.

Major comment:

It would be helpful if authors could offer the flow chart to clarify the experimental protocol and plots to show the involvement of cellular signaling pathways .

Minor essential revision:

1. In abstract, all the abbreviations should be give the full name ,includingMTT, MEK/ERK1/2, P13K/Akt ect, such as nerve growth factor (NGF) .

2. Grammar and spelling errors

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.