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OPEN PEER REVIEW

Synergistic Effect of Lovastatin and Selegiline on the Differentiation of Bone Marrow Stromal Cells Into Neuron-Like Cells

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About this report

This open peer review (OPR) report shows the public comments made on this article during peer review, by the reviewers, the associate editor and the editor-in-chief, for every revision round, together with the authors' replies. Comments appear only with the consent of the people who wrote them. Reviewers who chose to sign their report are named; the others are shown as "Referee". Comments are edited for language only, and confidential remarks to the editors are not included.

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Contents

1 Original submission 2
2 Revision 1 Referee 1 3
Authors' reply to reviewers 4
Reviewer and editor comments 6
3 Revision 2 7
Authors' reply to reviewers 8
Reviewer and editor comments 11

1 Original submission

0 comments

No public comments in this round.

2

Revision 1

AUTHORS' RESPONSE TO REVIEWERS

Authors' reply to reviewers

The next pages contain the authors' point-by-point reply to the comments of this revision round, as submitted with the revised manuscript. It is published as the authors wrote it.

We are thankful for the reviewers 'constructive comments that helped to considerably improve and clarify the manuscript. We hope that the revised version answers their concerns. In the following we illustrate how we took the reviewers' comments into account. Each reviewer is addressed individually, with the reviewer's comments in underlined font, our answers in bold font.

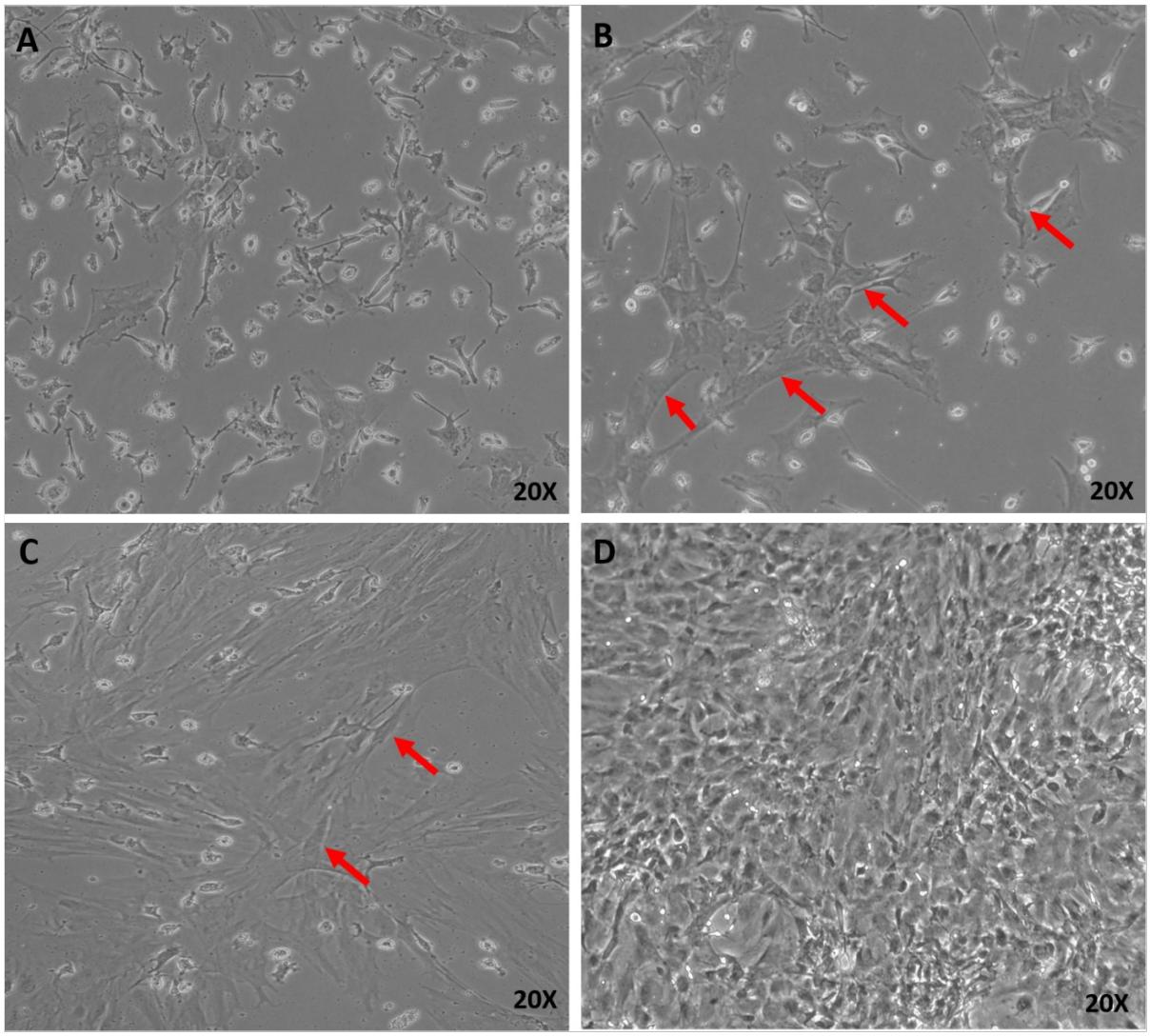
Journal: Jentashapir Journal of Cellular and Molecular Biology

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Manuscript Title: Synergistic effect of lovastatin on the differentiation of bone marrow stromal cells into neuron-like cells using selegiline

1) provide the figs 1-A, 1-B, 1-C, and 1-D at the same magnification. The spindle shapes have not seen in the Fig. 1.

Dear reviewer, thank you for your nice comments. In the revised manuscript your comments have been applied.



2) What is Selegiline?

Dear reviewer, in the revised manuscript your comments have been applied in the abstract section. (Highlight the changes you make in the manuscript by using red text)

Selegiline is an irreversible inhibitor of monoamine oxidase (MAO) type B. Since dopamine in the human brain is metabolized primarily by MAO-B, selegiline increases dopamine levels in the central nervous system. In addition to inhibiting MAO-B, selegiline also inhibits the uptake of dopamine and norepinephrine into presynaptic nerves and increases dopamine turnover.

3- -Explain the Selegiline in the introduction and more detail add to the discussion.

Dear reviewer, your comment applied in the edited manuscript.

We would like to use this opportunity to sincerely thank the dear reviewer again for his detailed comments, which are very useful for improving the language in the paper. We have taken all these comments into account in the revised version of the paper.

2 Revision 1

1 comment · 5 Nov 2023

Referee 1 Reviewer

MAJOR REVISION 5 Nov 2023

Dear Authors
The manuscript was reviewed carefully.
It needs major revision.
- I propose revising the title as follows:
Synergistic effect of lovastatin and selegiline on the differentiation of bone marrow stromal cells into neuron-like cells.
- Please mention the p-values in the Abstract and Material and methods.
- Please explain the molecular aspects of lovastatin and selegiline's effects on the differentiation of bone marrow stromal cells into neuron-like cells in the Introduction section.
- What was your method for RNA extraction and cDNA synthesis?
- How did you design your primers?
- What is your reference for choosing different concentrations of lovastatin and selegiline?
- The amount of mRNA expression (=1) must be included in the real-time PCR graphs.
- A summary of the study results must be included in the Discussion.
With Best Wshes

3

Revision 2

AUTHORS' RESPONSE TO REVIEWERS

Authors' reply to reviewers

The next pages contain the authors' point-by-point reply to the comments of this revision round, as submitted with the revised manuscript. It is published as the authors wrote it.

We are thankful for the reviewers 'constructive comments that helped to considerably improve and clarify the manuscript. We hope that the revised version answers their concerns. In the following we illustrate how we took the reviewers' comments into account.

Reviewer 1:

- I propose revising the title with the following title: Synergistic effect of lovastatin and selegiline on the differentiation of bone marrow stromal cells into neuron-like cells.

Dear reviewer, your comment applied in the revised manuscript (yellow color).

- Please mention the p-values in the Abstract and Material and methods.

Dear reviewer, your comment applied in the revised manuscript (yellow color).

-**Please explain the molecular aspects of lovastatin and selegiline's effects on the differentiation of bone marrow stromal cells into neuron-like cells in the Introduction section.**

Dear reviewer, as mentioned in the previous revision;

Selegiline may have neuroprotective effects and may slow the progression of Parkinson's disease by promoting the production of neurotrophins such as brain-derived neurotrophic factor, nerve growth factor, and glial cell neurotrophic factor. These neurotrophins play an important role in protecting neurons from the inflammatory process. The induction and activation of multiple stress antioxidants and anti-apoptotic factors by selegiline may contribute to the maintenance of healthy brain tissue.

Interestingly, previous data have shown that statins can alter the expression of neurotrophic factors in various animal models of neurological disorders.

In the revised manuscript showed in yellow color.

- What was your method for RNA extraction and cDNA synthesis?

Dear reviewer; as mentioned in the revised manuscript,

Total RNA was extracted using pure link RNA mini kit (Invitrogen) according to the company instruction. 1000 ng of purified RNA extracted from cultured cells was used to synthesize 20 µl of cDNA according to the RevertAid™ Reverse Transcriptase kit (Fermentas, Germany).

The PCR solution contained forward and reverse primers (200 nM each), cDNA (0.5 µl), SYBR® Green I (6.5 µl; Fermentas; Thermo Fisher Scientific, Inc.) and nuclease-free water to a final volume of 12.5 µl. The PCR reaction was repeated for 40 cycles, each cycle consisting of 15 seconds at 95°C followed by 1 minute at 60°C. The relative expression of each gene was calculated using the ΔΔCt method with Pffal efficiency correction.

In the revised manuscript showed in yellow color.

- How did you design your primers?

Dear reviewer, your comment applied in the revised manuscript (yellow color).

The primers were designed using Gene runner software (3.05) and prepared distributor (Gene Fanavaran Co., Iran).

- What is your reference for choosing different concentrations of lovastatin and selegiline?

Dear reviewer, your comment applied in the revised manuscript (yellow color).

(BMSCs induced with 20 µM selegiline for 24 hours according to the our previous study (18)), Experiment-2 (BMSCs induced with 6 µM lovastatin for 24 hours according to the our previous study (19)),

- The amount of mRNA expression (=1) must be included in the real-time PCR graphs.

Dear reviewer, the amount of mRNA expression are mentioned in the result section.

Please accept us, if possible.

- A summary of the study results must be included in the Discussion.

Dear reviewer, your comment applied in the revised manuscript (yellow color).

Reviewer 2:

This article is acceptable. However, the authors have to improve the language.

Dear reviewer, thank you so much for accept our manuscript.

Your comment applied in the revised manuscript.

We would like to use this opportunity to sincerely thank the dear reviewer again for his detailed comments, which are very useful for improving the language in the paper. We have taken all these comments into account in the revised version of the paper.

3 Revision 2

0 comments

No public comments in this round.