

Reviewer #1:

Scientific Quality: *Grade B (Very good)*

Language Quality: *Grade B (Minor language polishing)*

Conclusion: *Accept (General priority)*

Specific Comments to Authors: *It's an honor to review your article. This paper comprehensively explained the mechanism of MSC in reducing the cognitive impairment caused by neuroinflammation. At the same time, relevant studies were systematically analyzed to compare the effects of different types of mesenchymal stem cells on reducing neuroinflammation, and the content was relatively substantial. The language aspect words are accurate, the sentences are smooth. I think it's acceptable.*

I am grateful to Reviewer #1 for the high evaluation of my work. Minor language polishing has been performed with the help of native English speaker Dr. L.E.Malone.

Reviewer #2:

Although the full review of Reviewer #2 (which I received on March 1, 2021) has not been included into the final decision of Editorial Office, I have taken the Reviewer's #2 comments into account in the revised version of the manuscript. Please, find below the most important changes, which have been made. All additions in the revised manuscript, including new references, are marked by red.

- 1) *Suitable tables or figures missed from this manuscript. Using appropriate tables/figures is helpful for readers to understand the content of the article.*

Figure 1 has been added in p.5 to illustrate the nAChR-dependent way of neurodegeneration and the ways of its treatment. Table 1 has been added in p.8 to illustrate the neurological pathologies treated with MSCs.

- 2) *A separate section related to properties, characterization, and aging of mesenchymal stem cells must be devoted. It is better to put this section at the beginning of the article in the following of "Core tip section". You can use and refer the following papers: } Isolation, culturing, characterization and aging of adipose tissue-derived mesenchymal stem cells: a brief overview. Brazilian Archives of Biology and Technology. 2016; 59. } L-carnitine contributes to enhancement of neurogenesis from mesenchymal stem cells through Wnt/ β -catenin and PKA pathway. Experimental Biology and Medicine. 2017 Mar;242(5):482-6. } L-carnitine significantly decreased aging of rat adipose tissue-derived mesenchymal stem cells. Veterinary research communications. 2017 Mar 1;41(1):41-7.*

A paragraph describing the importance of the aging status of MSCs has been added on p.8 par2.

- 3) *The manuscript is not well referenced and some parts of this need more details. For example, the in vitro studies related to the role of MSCs on neurodegenerative diseases such as Alzheimer's disease and the cellular and molecular pathways regarding this must be involved. For this reason, you can use and refer the following paper which*

investigate the related signaling pathways in the “MSCs use upon neuroinflammation and in AD models section”: } Mesenchymal Stem Cells Could Be Considered as a Candidate for Further Studies in Cell-Based Therapy of Alzheimer’s Disease via Targeting the Signaling Pathways. ACS Chemical Neuroscience. 2020 Apr 20; 11 (10):1424-35.

A description of AD in vitro model has been added in p.7 par 2.

- 4) *Also, another important marker which related to aging and senescence is TELOMERE LENGTH SHORTENING. For this reason you can use and refer the following paper which review the telomere shortening as hallmark of stem cells in “Conclusion section”: } Telomere shortening as a hallmark of stem cell senescence. Stem cell investigation. 2019;6.*

The idea of telomere length shortening has been discussed in the section concerning MSCs senescence (p 8, par 2).

4 LANGUAGE QUALITY

A native-English speaker (Dr. L.E.Malone) has edited the manuscript for grammar, sentence structure, word usage, spelling, capitalization, punctuation, format, and general readability.

5 EDITORIAL OFFICE’S COMMENTS

Science editor:

The questions raised by the reviewers should be answered.

Please, see above the response to reviewers’ comments, point-by-point.

Format: There are no tables and no figures.

Figure 1 has been added in p.5 to illustrate the nAChR-dependent way of neurodegeneration and the ways of its treatment. Table 1 has been added in p.8 to illustrate the neurological pathologies treated with MSCs.

Self-cited references: There are 9 self-cited references. The self-referencing rates should be less than 10%. Please keep the reasonable self-citations (i.e. those that are most closely related to the topic of the manuscript) and remove all other improper self-citations.

After adding the new references recommended by the Reviewer #2 and removing one of the self-cited references, the total number of references is 89 including 8 self-cited references (less than 10%).

References recommendations: The authors have the right to refuse to cite improper references recommended by the peer reviewer(s), especially references published by the peer reviewer(s) him/herself (themselves).

Although the suggested new references seem to belong to Reviewer himself, some of them are relevant and have been added.

The “Author Contributions” section is missing. Please provide the author contributions.

Although I am the sole author of the review, the Author Contribution section has been added after Abbreviations section.

Please add table/figure to this review.

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Company editor-in-chief:

Before final acceptance, the author(s) must add a table/figure to the manuscript.

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