

PEER-REVIEW REPORT

Name of journal: *World Journal of Stem Cells*

Manuscript NO: 76469

Title: Prodigious therapeutic effects of combining Mesenchymal stem cells with Magnetic Nanoparticles

Provenance and peer review: Invited Manuscript; Externally peer reviewed

Peer-review model: Single blind

Reviewer's code: 03933399

Position: Editorial Board

Academic degree: PhD

Professional title: Director, Professor

Reviewer's Country/Territory: China

Author's Country/Territory: Jordan

Manuscript submission date: 2022-03-17

Reviewer chosen by: AI Technique

Reviewer accepted review: 2022-03-20 09:23

Reviewer performed review: 2022-03-24 13:48

Review time: 4 Days and 4 Hours

Scientific quality	<input type="checkbox"/> Grade A: Excellent <input type="checkbox"/> Grade B: Very good <input checked="" type="checkbox"/> Grade C: Good <input type="checkbox"/> Grade D: Fair <input type="checkbox"/> Grade E: Do not publish
Language quality	<input type="checkbox"/> Grade A: Priority publishing <input checked="" type="checkbox"/> Grade B: Minor language polishing <input type="checkbox"/> Grade C: A great deal of language polishing <input type="checkbox"/> Grade D: Rejection
Conclusion	<input type="checkbox"/> Accept (High priority) <input type="checkbox"/> Accept (General priority) <input type="checkbox"/> Minor revision <input checked="" type="checkbox"/> Major revision <input type="checkbox"/> Rejection
Re-review	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Peer-reviewer statements	Peer-Review: <input checked="" type="checkbox"/> Anonymous <input type="checkbox"/> Onymous
	Conflicts-of-Interest: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

SPECIFIC COMMENTS TO AUTHORS

Ejlal Abu-El-Rub et al updated the understanding of the contribution of magnetic nanoparticles to therapeutic effects of mesenchymal stem cell therapy. MSC therapies are promising but also facing a lot of challenges in tackling different diseases. There are a lot of work trying to improve them. This is an interesting update to the field. 1.The title reflects the main subject/hypothesis of the manuscript. 2.The abstract summarizes and reflects the work described in the manuscript. 3.Key words reflect the focus of the manuscript. 4.Background, the limitations of MSC therapy are far more than described in this manuscript. Please refer to PMID:35107300, batch heterogeneity, dosage and intervals, implantation time windows, disease status, MSC sources, etc. These should be included to lay out all challenges of MSC therapies for readers to judge. 5. As authors described, the source of MSCs include bone marrow, adipose tissues and umbilical cord. However, in the following few sections describing MSC as a contrast agent to track MSCs, an enhancer to the homing of transplanted MSCs, a helper to the migration abilities of transplanted MSCs, a promoter to the Differentiation and Survival of transplanted MSCs, authors did not mention the source of MSCs. Are there any differences in effects of magnetic nanoparticles to different source of MSCs? 6. Schematic illustration is good for understanding but it is too simple. Should describe the structure of magnetic nanoparticles and how they link to MSCs. 7. In many cases, authors did not address how magnetic nanoparticles exert their beneficial functions on MSC function. More mechanisms should be included. These data should be summarized into the schematic illustration to educate readers easily.

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Peer-review model: Single blind

Reviewer's code: 05172786

Position: Peer Reviewer

Academic degree: MD

Professional title: Doctor

Reviewer's Country/Territory: China

Author's Country/Territory: Jordan

Manuscript submission date: 2022-03-17

Reviewer chosen by: AI Technique

Reviewer accepted review: 2022-04-11 03:28

Reviewer performed review: 2022-04-13 01:30

Review time: 1 Day and 22 Hours

Scientific quality	<input type="checkbox"/> Grade A: Excellent <input checked="" type="checkbox"/> Grade B: Very good <input type="checkbox"/> Grade C: Good <input type="checkbox"/> Grade D: Fair <input type="checkbox"/> Grade E: Do not publish
Language quality	<input checked="" type="checkbox"/> Grade A: Priority publishing <input type="checkbox"/> Grade B: Minor language polishing <input type="checkbox"/> Grade C: A great deal of language polishing <input type="checkbox"/> Grade D: Rejection
Conclusion	<input type="checkbox"/> Accept (High priority) <input checked="" type="checkbox"/> Accept (General priority) <input type="checkbox"/> Minor revision <input type="checkbox"/> Major revision <input type="checkbox"/> Rejection
Re-review	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Peer-reviewer statements	Peer-Review: [<input checked="" type="radio"/>] Anonymous [<input type="radio"/>] Onymous
	Conflicts-of-Interest: [<input type="radio"/>] Yes [<input checked="" type="radio"/>] No

SPECIFIC COMMENTS TO AUTHORS

This review has well organized the research progress related to MSCs and MNP, and put forward some of its own insights. But it is suggested that some diagrams and tables can be added to increase the readability of the paper. Overall, this article has demonstrated the progress of the application of MNPs in the field of MSCs, and has a good guiding significance for the follow-up research. It is recommended to be accepted for publication after revision.

RE-REVIEW REPORT OF REVISED MANUSCRIPT

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Reviewer's code: 03933399

Position: Editorial Board

Academic degree: PhD

Professional title: Director, Professor

Reviewer's Country/Territory: China

Author's Country/Territory: Jordan

Manuscript submission date: 2022-03-17

Reviewer chosen by: Jia-Ru Fan

Reviewer accepted review: 2022-05-27 08:48

Reviewer performed review: 2022-05-27 11:33

Review time: 2 Hours

Scientific quality	<input type="checkbox"/> Grade A: Excellent <input checked="" type="checkbox"/> Grade B: Very good <input type="checkbox"/> Grade C: Good <input type="checkbox"/> Grade D: Fair <input type="checkbox"/> Grade E: Do not publish
Language quality	<input checked="" type="checkbox"/> Grade A: Priority publishing <input type="checkbox"/> Grade B: Minor language polishing <input type="checkbox"/> Grade C: A great deal of language polishing <input type="checkbox"/> Grade D: Rejection
Conclusion	<input type="checkbox"/> Accept (High priority) <input type="checkbox"/> Accept (General priority) <input checked="" type="checkbox"/> Minor revision <input type="checkbox"/> Major revision <input type="checkbox"/> Rejection
Peer-reviewer	Peer-Review: <input checked="" type="checkbox"/> Anonymous <input type="checkbox"/> Onymous

statementsConflicts-of-Interest: [] Yes [**Y**] No**SPECIFIC COMMENTS TO AUTHORS**

Authors have revised the manuscript substantially by adding a table and revising the figure. Authors should have uploaded a revised manuscript with highlighted changes. I am impressed by the subject of this mini review. I do not mean to give hard time to authors. To increase the attraction of this manuscript after publication, I do think there are two minor revisions that should be addressed. First, to cite relevant literature on MSC challenges are essential for readers to follow on. But authors refused to do so. Second, for the figure, it is better to show the structure of MNPs as shown in original manuscript. Authors could draw one amplified MNP with outer coat and metallic core beside the existing figure.