PEER-REVIEW REPORT

Name of journal: *World Journal of Stem Cells*

Manuscript NO: 65810

Title: Application of mesenchymal stem cells derived from human pluripotent stem cells in regenerative medicine

Provenance and peer review: Invited Manuscript; Externally peer reviewed

Peer-review model: Single blind

Reviewer's code: 05821062

Position: Peer Reviewer

Academic degree: MD

Professional title: Doctor

Reviewer's Country/Territory: China

Author's Country/Territory: Singapore

Manuscript submission date: 2021-03-16

Reviewer chosen by: AI Technique

Reviewer accepted review: 2021-03-18 09:30

Reviewer performed review: 2021-03-18 14:23

Review time: 4 Hours

Scientific quality	[ ] Grade A: Excellent [ ] Grade B: Very good [Y] Grade C: Good [ ] Grade D: Fair [ ] Grade E: Do not publish
Language quality	[ ] Grade A: Priority publishing [Y] Grade B: Minor language polishing [ ] Grade C: A great deal of language polishing [ ] Grade D: Rejection
Conclusion	[ ] Accept (High priority) [ ] Accept (General priority) [Y] Minor revision [ ] Major revision [ ] Rejection
Re-review	[ ] Yes [Y] No

Peer-reviewer statements	Peer-Review: [Y] Anonymous [ ] Onymous
	Conflicts-of-Interest: [ ] Yes [Y] No

SPECIFIC COMMENTS TO AUTHORS

Comments The manuscript 65810 tried to summarize the progress of the derivation of MSCs from human pluripotent stem cells and their various applications in regenerative medicine and discussed the challenges and concerns with hPSC-MSC application. Some points in doubt proposed in my first review as follows before accepted. 1. In Introduction of the manuscript, the author summarized "Mesenchymal stem cells (MSCs) are adult stem cell with fibroblast-like morphology and plastic-adherence, which express MSC surface antigens such as CD73, CD90 and CD105 but lack in hematopoietic markers such as CD14, CD34 and CD45." Here, we should elucidate that the clinical criteria of hMSCs has been updated positive for reactivity to antigens CD73, CD90, CD105, and HLA-DR, and negative for reactivity to antigens CD11b, CD19, CD34, and CD45.   2. Should regenerative medicines for the neurodegenerative diseases, such as (Alzheimer's disease, multiple sclerosis, spinal cord injury, neuropathic pain, stroke, Parkinson's disease, and epilepsy, be included?   3. The latest references (for 2020) involving with this manuscript should be updated.

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Manuscript NO: 65810

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Provenance and peer review: Invited Manuscript; Externally peer reviewed

Peer-review model: Single blind

Reviewer's code: 05911340

Position: Peer Reviewer

Academic degree: MD

Professional title: Doctor

Reviewer's Country/Territory: France

Author's Country/Territory: Singapore

Manuscript submission date: 2021-03-16

Reviewer chosen by: AI Technique

Reviewer accepted review: 2021-03-16 15:51

Reviewer performed review: 2021-03-23 16:00

Review time: 7 Days

Scientific quality	[ ] Grade A: Excellent [ ] Grade B: Very good [ ] Grade C: Good [ ] Grade D: Fair [Y] Grade E: Do not publish
Language quality	[Y] Grade A: Priority publishing [ ] Grade B: Minor language polishing [Y] Grade C: A great deal of language polishing [ ] Grade D: Rejection
Conclusion	[ ] Accept (High priority) [ ] Accept (General priority) [ ] Minor revision [ ] Major revision [Y] Rejection
Re-review	[Y] Yes [ ] No

Peer-reviewer statements	Peer-Review: [Y] Anonymous [ ] Onymous
	Conflicts-of-Interest: [ ] Yes [Y] No

SPECIFIC COMMENTS TO AUTHORS

You wrote a review on hPSC-MSCs and their several uses in research.   1) Your title, your abstract and your keywords do not reflect the part where you talk about the use of these cells in disease modelling and drug screening.   2) Several references are missing: - paragraph 1, lines 2-3 - paragraph 2, line 20 - paragraph 3, lines 7 and 13 - paragraph 4, lines 7 and 22 - paragraph 5, lines 10, 35 and 70   3) Table 1 should have references for each line, like Table 2 which is good (it really brings information to the reader).   4) In the "Derivation of hPSC-MSCs" paragraph, you talk about MSCs from paraxial mesoderm but do not give any more information about it.   5) Even if you talk about important points concerning MSCs, my overall feeling is that it is very hard to gain clear information. Rather than writing lists of items in each paragraph, please try to make links between data / ideas.   6) You should also ask for help for language quality (style, grammar, and spelling).

Scientific quality	[ ] Grade A: Excellent [ ] Grade B: Very good [Y] Grade C: Good [ ] Grade D: Fair [ ] Grade E: Do not publish
Language quality	[ ] Grade A: Priority publishing [Y] Grade B: Minor language polishing [ ] Grade C: A great deal of language polishing [ ] Grade D: Rejection
Conclusion	[ ] Accept (High priority) [ ] Accept (General priority) [ ] Minor revision [Y] Major revision [ ] Rejection

Re-review	[Y] Yes [ ] No
Peer-reviewer statements	Peer-Review: [Y] Anonymous [ ] Onymous
	Conflicts-of-Interest: [ ] Yes [Y] No

SPECIFIC COMMENTS TO AUTHORS

The subject of the manuscript is the application of human pluripotent stem cells-MSC in regenerative medicine. Regenerative medicine covers a wide range, not only bones, cartilage, immune system diseases, kidneys, tumors, etc., but also important applications in organs or tissues such as the heart, lungs, brain (nerves), and teeth. This article only uses a small space to describe the disease model and the current status of its application. Regarding the hPSC-MSC application in regenerative medicine involved in heart, brain, lung, tooth and other systems, no review has been made. It is recommended to add relevant content. A total of 81 references are cited in the manuscript, of which only 14 are published after 2018, which cannot represent the latest progress on this topic.

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Provenance and peer review: Invited Manuscript; Externally peer reviewed

Peer-review model: Single blind

Reviewer's code: 03270754

Position: Editorial Board

Academic degree: MD, PharmD, PhD

Professional title: Assistant Professor, Associate Professor

Reviewer's Country/Territory: China

Author's Country/Territory: Singapore

Manuscript submission date: 2021-03-16

Reviewer chosen by: AI Technique

Reviewer accepted review: 2021-03-17 00:45

Reviewer performed review: 2021-03-30 01:00

Review time: 13 Days

Scientific quality	[ ] Grade A: Excellent [ ] Grade B: Very good [Y] Grade C: Good [ ] Grade D: Fair [ ] Grade E: Do not publish
Language quality	[ ] Grade A: Priority publishing [Y] Grade B: Minor language polishing [ ] Grade C: A great deal of language polishing [ ] Grade D: Rejection
Conclusion	[ ] Accept (High priority) [ ] Accept (General priority) [ ] Minor revision [Y] Major revision [ ] Rejection
Re-review	[Y] Yes [ ] No

Peer-reviewer statements	Peer-Review: [Y] Anonymous [ ] Onymous
	Conflicts-of-Interest: [ ] Yes [Y] No

SPECIFIC COMMENTS TO AUTHORS

1.This research focused on hPSC-MSC application in regenerative medicine,   very prospective, also Dr Tong Ming Liu have stem cells research experience, in this review also cited 4 papers related with stem cells he publicated. 2. Have some hPSC-MSC application in clinic until now?Because only animal model from Table 2 . 3. If can clearly discuss the hPSC-MSC application in regenerative medicine including some signal pathway with a Figure, maybe much more better . 4.References need to be formatted according to the requirements of this journal. 5. English need further polish although look very good.

RE-REVIEW REPORT OF REVISED MANUSCRIPT

Scientific quality	[ ] Grade A: Excellent [Y] Grade B: Very good [ ] Grade C: Good [ ] Grade D: Fair [ ] Grade E: Do not publish
Language quality	[ ] Grade A: Priority publishing [Y] Grade B: Minor language polishing [ ] Grade C: A great deal of language polishing [ ] Grade D: Rejection
Conclusion	[ ] Accept (High priority) [Y] Accept (General priority) [ ] Minor revision [ ] Major revision [ ] Rejection

Peer-reviewer statements	Peer-Review: [Y] Anonymous [ ] Onymous
	Conflicts-of-Interest: [ ] Yes [Y] No

SPECIFIC COMMENTS TO AUTHORS

The author has made good revisions based on the comments of the reviewers, and the quality of the article deserves to be accepted and published.

RE-REVIEW REPORT OF REVISED MANUSCRIPT

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Position: Editorial Board

Academic degree: MD, PharmD, PhD

Professional title: Assistant Professor, Associate Professor

Reviewer's Country/Territory: China

Author's Country/Territory: Singapore

Manuscript submission date: 2021-03-16

Reviewer chosen by: Jia-Ping Yan

Reviewer accepted review: 2021-07-27 22:39

Reviewer performed review: 2021-07-28 00:18

Review time: 1 Hour

Scientific quality	[　] Grade A: Excellent　[Y] Grade B: Very good　[　] Grade C: Good [　] Grade D: Fair　[　] Grade E: Do not publish
Language quality	[Y] Grade A: Priority publishing　[　] Grade B: Minor language polishing [　] Grade C: A great deal of language polishing　[　] Grade D: Rejection
Conclusion	[　] Accept (High priority)　[Y] Accept (General priority) [　] Minor revision　[　] Major revision　[　] Rejection
Peer-reviewer	Peer-Review: [Y] Anonymous　[　] Onymous

| **statements** | Conflicts-of-Interest: [   ] Yes   [Y] No |

SPECIFIC COMMENTS TO AUTHORS

have revised follow my suggestions，suitable for this journal.