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PEER-REVIEW REPORT

Name of journal: World Journal of Stem Cells

Manuscript NO: 65073

Title: Effects of shear stress on differentiation of stem cells into endothelial cells

Reviewer's code: 05191118
Position: Peer Reviewer
Academic degree: PhD
Professional title: Assistant Professor
Reviewer's Country/Territory: India
Author's Country/Territory: China

Manuscript submission date: 2021-02-27

Reviewer chosen by: AI Technique

Reviewer accepted review: 2021-02-27 16:41

Reviewer performed review: 2021-03-09 20:40

Review time: 10 Days and 3 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Scientific quality	[ ] Grade A: Excellent [ ] Grade B: Very good [Y] Grade C: Good [ ] Grade D: Fair [ ] Grade E: Do not publish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) [Y] Accept (General priority) [ ] Minor revision [ ] Major revision [ ] Rejection
Re-review	[Y] Yes [ ] No
Peer-reviewer statements	Peer-Review: [Y] Anonymous [ ] Onymous Conflicts-of-Interest: [ ] Yes [Y] No

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SPECIFIC COMMENTS TO AUTHORS

This review provides a detailed mechanistic overview of the influence of shear stress (physical stimulation) on the differentiation of stem cells into endothelial cells. The authors have presented all the topics in a systematic manner citing current studies. It is a timely review on a topic of broad interest. This knowledge will be useful to the scientific community for stem cells for pharmacological applications, cardiovascular implants, and so forth. However, there are general, major, and minor comments which the authors have to address before its acceptance. I recommend the publication of this review after the authors address the general, major, and minor comments listed below and in the attached file. GENERAL comments: 1. Endothelial cells have been abbreviated as "ECs". But this is not followed throughout the manuscript. 2. Abbreviations used are not cited properly throughout the manuscript. Sometimes even after abbreviating after the first appearance, they are written in full (eg. Endothelial cells, embryonic stem cells, vascular endothelial growth factor, etc.) and vice versa. It is advised not to abbreviate if the word(s) appears less than three times in the manuscript. 3. "in vitro" and "in vivo" are either in italics or in non-italics form. Please edit as per the journal requirement. 4.

Hours is written either in "hours" or "h" and Days either in "days" and "d". Please maintain uniformity as per the journal format. 5. Some sentences highlighted in the attached file are too long and unclear, so please rephrase them (such sentences are present mostly in the signaling pathways subsections). MAJOR COMMENTS: 1. The signaling pathways section requires more attention in rephrasing the sentences so that it is easy for the reader to comprehend. Specific MINOR comments: Please see the attached file for all the specific comments.

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PEER-REVIEW REPORT

Name of journal: World Journal of Stem Cells

Manuscript NO: 65073

Title: Effects of shear stress on differentiation of stem cells into endothelial cells

Reviewer's code: 05817634
Position: Peer Reviewer
Academic degree: MD
Professional title: Doctor
Reviewer's Country/Territory: Japan
Author's Country/Territory: China

Manuscript submission date: 2021-02-27
Reviewer chosen by: AI Technique
Reviewer accepted review: 2021-03-01 04:37
Reviewer performed review: 2021-03-10 10:45
Review time: 9 Days and 6 Hours

Scientific quality	[ ] Grade A: Excellent [ ] Grade B: Very good [Y] 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) [ ] 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

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SPECIFIC COMMENTS TO AUTHORS

Shear stress is one of the important physical factors to affect stem cell fate and endothelial cells are generally exposed to it as blood flow. Therefore, understanding the effect of shear stress on the endothelial generation. The review article, entitled "Effects of shear stress on the differentiation of stem cells into endothelial cells", introduces how shear stress stimulates the signaling and promotes endothelial differentiation with many researches and is helpful to understand them. The reviewer has peer-reviewed according to the criteria checklist and put the comments to modify below. - The unit "dyne" does not belong to SI unit. The reviewer recommend conversion to the unit "N". (Checklist no. 6 Units, "Does the manuscript meet the requirements of use of SI units?") -Illustration of Figure 1 is unclear. The reviewer could not understand what types of cells were illustrated and where the cells are. In addition, where the shear stress comes from?(different from blood stream?) . Finally, the legend of figure 1 mentioned "signaling pathways in early endothelial differentiation" but there is no illustration about differentiation (what does paracrine factors mean?). Thus, the reviewer recommends modification the illustration. (Checklist no.8 Illustrations and tables, "Are the figures, diagrams and tables sufficient, good quality and appropriately illustrative of the paper contents?") - To promote the research on the effect of shear stress, the reviewer suggests adding the section for the technologies to apply shear stress to the cells, such as micro fluidic system and perfusion culture system. - The reviewer thinks there are no point to modify based on the other items of checklist.

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PEER-REVIEW REPORT

Name of journal: World Journal of Stem Cells

Manuscript NO: 65073

Title: Effects of shear stress on differentiation of stem cells into endothelial cells

Reviewer's code: 05917949
Position: Peer Reviewer
Academic degree: MD
Professional title: Doctor
Reviewer's Country/Territory: Poland
Author's Country/Territory: China

Manuscript submission date: 2021-02-27
Reviewer chosen by: Ya-Juan Ma
Reviewer accepted review: 2021-03-14 08:45
Reviewer performed review: 2021-03-20 08:56
Review time: 6 Days

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
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SPECIFIC COMMENTS TO AUTHORS

The topic is interesting and is well described in the manuscript.