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PEER-REVIEW REPORT

Name of journal: World Journal of Stem Cells

Manuscript NO: 43272

Title: Current Methods for the Maturation of Induced Pluripotent Stem Cell-Derived Cardiomyocytes

Reviewer's code: 03478635

Reviewer's country: Japan

Science editor: Ying Dou

Date sent for review: 2018-10-30

Date reviewed: 2018-10-31

Review time: 19 Hours

SCIENTIFIC QUALITY	LANGUAGE QUALITY	CONCLUSION	PEER-REVIEWER STATEMENTS
<input type="checkbox"/> Grade A: Excellent	<input type="checkbox"/> Grade A: Priority publishing	<input type="checkbox"/> Accept	Peer-Review:
<input type="checkbox"/> Grade B: Very good	<input type="checkbox"/> Grade B: Minor language	(High priority)	<input type="checkbox"/> Anonymous
<input type="checkbox"/> Grade C: Good	polishing	<input type="checkbox"/> Accept	<input type="checkbox"/> Onymous
<input type="checkbox"/> Grade D: Fair	<input type="checkbox"/> Grade C: A great deal of	(General priority)	Peer-reviewer's expertise on the
<input type="checkbox"/> Grade E: Do not	language polishing	<input type="checkbox"/> Minor revision	topic of the manuscript:
publish	<input type="checkbox"/> Grade D: Rejection	<input type="checkbox"/> Major revision	<input type="checkbox"/> Advanced
		<input type="checkbox"/> Rejection	<input type="checkbox"/> General
			<input type="checkbox"/> No expertise
			Conflicts-of-Interest:
			<input type="checkbox"/> Yes
			<input type="checkbox"/> No

SPECIFIC COMMENTS TO AUTHORS

This is a very interesting study describing the maturation of human induced pluripotent stem cell-derived cardiomyocytes. The descriptions about the maturation of hiPSC-CMs by co-incubation with mesenchymal stem cells may be revised to include the factors

secreted from MSCs.

INITIAL REVIEW OF THE MANUSCRIPT

Google Search:

- ☐ The same title
- ☐ Duplicate publication
- ☐ Plagiarism
- ☐ No

BPG Search:

- ☐ The same title
- ☐ Duplicate publication
- ☐ Plagiarism
- ☐ No



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PEER-REVIEW REPORT

Name of journal: World Journal of Stem Cells

Manuscript NO: 43272

Title: Current Methods for the Maturation of Induced Pluripotent Stem Cell-Derived Cardiomyocytes

Reviewer's code: 02446101

Reviewer's country: China

Science editor: Ying Dou

Date sent for review: 2018-10-30

Date reviewed: 2018-10-31

Review time: 21 Hours

SCIENTIFIC QUALITY	LANGUAGE QUALITY	CONCLUSION	PEER-REVIEWER STATEMENTS
<input type="checkbox"/> Grade A: Excellent	<input checked="" type="checkbox"/> Grade A: Priority publishing	<input checked="" type="checkbox"/> Accept	Peer-Review:
<input checked="" type="checkbox"/> Grade B: Very good	<input type="checkbox"/> Grade B: Minor language	(High priority)	<input checked="" type="checkbox"/> Anonymous
<input type="checkbox"/> Grade C: Good	polishing	<input type="checkbox"/> Accept	<input type="checkbox"/> Onymous
<input type="checkbox"/> Grade D: Fair	<input type="checkbox"/> Grade C: A great deal of	(General priority)	Peer-reviewer's expertise on the
<input type="checkbox"/> Grade E: Do not	language polishing	<input type="checkbox"/> Minor revision	topic of the manuscript:
publish	<input type="checkbox"/> Grade D: Rejection	<input type="checkbox"/> Major revision	<input type="checkbox"/> Advanced
		<input type="checkbox"/> Rejection	<input checked="" type="checkbox"/> General
			<input type="checkbox"/> No expertise
			Conflicts-of-Interest:
			<input type="checkbox"/> Yes
			<input checked="" type="checkbox"/> No

SPECIFIC COMMENTS TO AUTHORS

The manuscript illuminates the difference between adult cardiomyocytes and hiPSC-CMs in 4 important ways, including the expression of specific genes, differing structural features, altered metabolism and contractile function. In addition, the

manuscript introduces systematically the approaches for the maturation of hiPSC-CMs from three aspects. The combination of several of these approaches may lead to the optimal maturation conditions. However, there are several issues that should be addressed. 1. Please add some information concerning the mechanisms of improvement in the maturation of hiPSC-CMs in the approaches introduced. 2. What are limitations and questions in 3D cardiomyocyte cultures? 3. What are causes of the hiPSC-CMs being qualitatively and quantitatively immature?

INITIAL REVIEW OF THE MANUSCRIPT

Google Search:

- ☐ The same title
- ☐ Duplicate publication
- ☐ Plagiarism
- ☐ No

BPG Search:

- ☐ The same title
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- ☐ No



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PEER-REVIEW REPORT

Name of journal: World Journal of Stem Cells

Manuscript NO: 43272

Title: Current Methods for the Maturation of Induced Pluripotent Stem Cell-Derived Cardiomyocytes

Reviewer's code: 03370303

Reviewer's country: Japan

Science editor: Ying Dou

Date sent for review: 2018-10-30

Date reviewed: 2018-11-01

Review time: 2 Days

SCIENTIFIC QUALITY	LANGUAGE QUALITY	CONCLUSION	PEER-REVIEWER STATEMENTS
<input type="checkbox"/> Grade A: Excellent	<input checked="" type="checkbox"/> Grade A: Priority publishing	<input type="checkbox"/> Accept	Peer-Review:
<input type="checkbox"/> Grade B: Very good	<input type="checkbox"/> Grade B: Minor language	(High priority)	<input checked="" type="checkbox"/> Anonymous
<input checked="" type="checkbox"/> Grade C: Good	polishing	<input checked="" type="checkbox"/> Accept	<input type="checkbox"/> Onymous
<input type="checkbox"/> Grade D: Fair	<input type="checkbox"/> Grade C: A great deal of	(General priority)	Peer-reviewer's expertise on the
<input type="checkbox"/> Grade E: Do not	language polishing	<input type="checkbox"/> Minor revision	topic of the manuscript:
publish	<input type="checkbox"/> Grade D: Rejection	<input type="checkbox"/> Major revision	<input type="checkbox"/> Advanced
		<input type="checkbox"/> Rejection	<input checked="" type="checkbox"/> General
			<input type="checkbox"/> No expertise
			Conflicts-of-Interest:
			<input type="checkbox"/> Yes
			<input checked="" type="checkbox"/> No

SPECIFIC COMMENTS TO AUTHORS

This review is very well written, compactly summarizing the recent methodological progress in inducing the differentiation of hiPSC into adult-type cardiomyocytes. This review will contribute to further technological advancement of the provision of

matured cardiomyocytes that are useful in drug discovery and transplantation therapy.

INITIAL REVIEW OF THE MANUSCRIPT

Google Search:

- ☐ The same title
- ☐ Duplicate publication
- ☐ Plagiarism
- ☐ No

BPG Search:

- ☐ The same title
- ☐ Duplicate publication
- ☐ Plagiarism
- ☐ No



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PEER-REVIEW REPORT

Name of journal: World Journal of Stem Cells

Manuscript NO: 43272

Title: Current Methods for the Maturation of Induced Pluripotent Stem Cell-Derived Cardiomyocytes

Reviewer's code: 02446280

Reviewer's country: Russia

Science editor: Ying Dou

Date sent for review: 2018-10-30

Date reviewed: 2018-11-06

Review time: 6 Days

SCIENTIFIC QUALITY	LANGUAGE QUALITY	CONCLUSION	PEER-REVIEWER STATEMENTS
<input type="checkbox"/> Grade A: Excellent	<input checked="" type="checkbox"/> Grade A: Priority publishing	<input type="checkbox"/> Accept	Peer-Review:
<input checked="" type="checkbox"/> Grade B: Very good	<input type="checkbox"/> Grade B: Minor language	(High priority)	<input checked="" type="checkbox"/> Anonymous
<input type="checkbox"/> Grade C: Good	polishing	<input checked="" type="checkbox"/> Accept	<input type="checkbox"/> Onymous
<input type="checkbox"/> Grade D: Fair	<input type="checkbox"/> Grade C: A great deal of	(General priority)	Peer-reviewer's expertise on the
<input type="checkbox"/> Grade E: Do not	language polishing	<input type="checkbox"/> Minor revision	topic of the manuscript:
publish	<input type="checkbox"/> Grade D: Rejection	<input type="checkbox"/> Major revision	<input type="checkbox"/> Advanced
		<input type="checkbox"/> Rejection	<input checked="" type="checkbox"/> General
			<input type="checkbox"/> No expertise
			Conflicts-of-Interest:
			<input type="checkbox"/> Yes
			<input checked="" type="checkbox"/> No

SPECIFIC COMMENTS TO AUTHORS

The manuscript entitled "Current Methods for the Maturation of Induced Pluripotent Stem Cell-Derived Cardiomyocytes" addresses very important issue of differentiation approaches to obtain adult specific functional cell types, particularly cardiomyocytes.

Although spontaneously beating cells are rather easy to differentiate from human pluripotent stem cells they are not correspond to their natural analogues from adults heart largely representing some embryonic or fetal cardiac cells. Thus, developing of some maturing procedures in vitro is of importance. Title and abstract reflect main subject of the review, introduction brings to the importance of the topic. Main difference between adult cardiomyocytes and stem cells derived is in their gene expression pattern, which in turn leads to the structural, metabolic, and functional differences. Authors revise recent achievements in the field using modern literature and discuss biochemical, environmental, and structural approaches for cardiac cells maturation. The paper is well written and interesting. I would advise to include some more illustrative material for environmental and 3D approaches for cardiac cells maturation.

INITIAL REVIEW OF THE MANUSCRIPT

Google Search:

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- ☐ Duplicate publication
- ☐ Plagiarism
- ☐ No

BPG Search:

- ☐ The same title
- ☐ Duplicate publication
- ☐ Plagiarism
- ☐ No