



PEER-REVIEW REPORT

Name of journal: World Journal of Stem Cells

Manuscript NO: 43395

Title: Stromal cell-derived factor-1 α promotes recruitment and differentiation of nucleus pulposus-derived stem cells

Reviewer's code: 03370303

Reviewer's country: Japan

Science editor: Fang-Fang Ji

Date sent for review: 2018-11-15

Date reviewed: 2018-11-17

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 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 checked="" type="checkbox"/> Minor revision	topic of the manuscript:
publish	<input type="checkbox"/> Grade D: Rejection	<input type="checkbox"/> Major revision	<input checked="" type="checkbox"/> Advanced
		<input type="checkbox"/> Rejection	<input 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 study was very well performed, showing proinflammatory signal-induced SDF-1 α production by NP cells in vivo and SDF-1 α -dependent migration and chondrogenic differentiation of NPSCs in vitro. I believe that this manuscript will contribute to an



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advanced understanding of the pathophysiology of IVD. However, there is one concern regarding the description about the expression of CD105 in NPSCs (Fig. 1d). Before publication in World Journal of Stem Cells, this point should be addressed. Minor concerns: In the 1st paragraph in Result section, there is no description about the finding of CD105 in the main text although its flow cytometry result was shown in Fig. 1d. It is known that CD105 positivity considerably differs among MSCs of different tissues (Maleki M et al. International Journal of Stem Cells 7:118-126, 2014). Moreover, bone marrow-derived MSCs consist of mixed populations with CD105high and CD105 low (Anderson P et al., Plos One 8: e76979, 2013). Therefore, it is a very interesting finding that NPSCs consist of a single CD105high populations. CD105 is known as an auxiliary receptor for the TGF- β receptor complex and, as authors suggested (in page 15, lines 6-7), SDF-1 α synergistically promotes TGF- β 1-induced chondrogenic differentiation of NPSCs. I suggest that authors would add descriptions about CD105 expression in NPSCs in the 1st paragraph in Result. For example, the sentence "The cells were positive for the MSC markers CD29 and CD90, and negative for the hematopoietic markers CD45 and CD34 (Figure 1d)" should be corrected as "The cells were positive for widely used MSC markers CD29 and CD90, positive for CD105, which is expressed in certain populations of MSCs to serve as an auxiliary receptor for the TGF- β receptor complex, and negative for the hematopoietic markers CD45 and CD34 (Figure 1d)".

INITIAL REVIEW OF THE MANUSCRIPT

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PEER-REVIEW REPORT

Name of journal: World Journal of Stem Cells

Manuscript NO: 43395

Title: Stromal cell-derived factor-1 α promotes recruitment and differentiation of nucleus pulposus-derived stem cells

Reviewer's code: 03478635

Reviewer's country: Japan

Science editor: Fang-Fang Ji

Date sent for review: 2018-11-29

Date reviewed: 2018-11-30

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 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

This is a very important study about SDF1 α on chondrogenic differentiation of stem cells. The effect of CXCR4 on MSC differentiation may be discussed more in detail.



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PEER-REVIEW REPORT

Name of journal: World Journal of Stem Cells

Manuscript NO: 43395

Title: Stromal cell-derived factor-1 α promotes recruitment and differentiation of nucleus pulposus-derived stem cells

Reviewer's code: 02728252

Reviewer's country: Egypt

Science editor: Fang-Fang Ji

Date sent for review: 2018-11-29

Date reviewed: 2018-12-05

Review time: 5 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
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		<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

It is a well-designed comprehensive study aimed to evaluate the effects of stromal cell-derived factor-1 α on recruitment and chondrogenic differentiation of nucleus pulposus-derived stem cells. The authors concluded that stromal cell-derived factor-1 α



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has the potential to enhance recruitment and chondrogenic differentiation of nucleus pulposus-derived stem cells via SDF-1/CXCR4 chemotaxis signals that contribute to intervertebral disc regeneration. The study is interesting, well written and has a rational with no further comments.

INITIAL REVIEW OF THE MANUSCRIPT

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