

PEER-REVIEW REPORT

Name of journal: World Journal of Stem Cells

Manuscript NO: 53790

Title: Decellularized adipose matrix provides an inductive microenvironment for stem cells in tissue regeneration

Reviewer's code: 02702057

Position: Peer Reviewer

Academic degree: BSc, MSc, PhD

Professional title: Associate Professor

Reviewer's Country/Territory: Italy

Author's Country/Territory: China

Manuscript submission date: 2019-12-31

Reviewer chosen by: Ruo-Yu Ma

Reviewer accepted review: 2020-01-09 12:02

Reviewer performed review: 2020-01-09 13:42

Review time: 1 Hour

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 Grade E: Do not publish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 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

Manuscript titled “Decellularized adipose matrix provides an inductive microenvironment for stem cells in tissue regeneration” deals an important issue of Stem Cells in tissue regeneration. This review outlines the importance of DAM to provide an inductive microenvironment for stem cells in tissue regeneration. The review is great and complete. Moreover, there are some minor concerns that need to be addressed before recommending publication. Please add the aim of your study in the abstract. Please specify on the text the kind of review you made (systematic, narrative, and so on). The authors could be add a graphical abstract to explain in a better fast way the aim and the design of this study and to help better readers understand. To help better readers understanding. Please improve the cartilage paragraph, it is too poor based on the current literature. Please add a sentence regarding the the expression of lubricin and the use of chondropellet of mesenchymal stem cells derived from adipose tissue as an alternative method in tissue regeneration: Please quote adequate reference as follow or other similar: Engineered cartilage regeneration from adipose tissue derived-mesenchymal stem cells: A morphomolecular study on osteoblast, chondrocyte and apoptosis evaluation. *Exp Cell Res.* 2017 Aug 15;357(2):222-235. doi: 10.1016/j.yexcr.2017.05.018. Epub 2017 May 18. PubMed PMID: 28529106. Biosynthesis of collagen I, II, RUNX2 and lubricin at different time points of chondrogenic differentiation in a 3D in vitro model of human mesenchymal stem cells derived from adipose tissue. *Acta Histochem.* 2014 Oct;116(8):1407-17. doi: 10.1016/j.acthis.2014.09.008. Epub 2014 Oct 11. PubMed PMID: 25307495. Mesenchymal stem cells from adipose tissue which have been differentiated into chondrocytes in three-dimensional culture express lubricin. *Exp Biol Med (Maywood).* 2011 Nov;236(11):1333-41. doi: 10.1258/ebm.2011.011183. Epub 2011 Oct 28. PubMed



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PMID: 22036733. In the conclusion section please add the clinical relevance of your work.

PEER-REVIEW REPORT

Name of journal: World Journal of Stem Cells

Manuscript NO: 53790

Title: Decellularized adipose matrix provides an inductive microenvironment for stem cells in tissue regeneration

Reviewer's code: 02566952

Position: Editorial Board

Academic degree: MD, PhD

Professional title: Chief Doctor, Senior Researcher, Surgeon

Reviewer's Country/Territory: Romania

Author's Country/Territory: China

Manuscript submission date: 2019-12-31

Reviewer chosen by: Ruo-Yu Ma

Reviewer accepted review: 2020-03-16 08:50

Reviewer performed review: 2020-03-16 10:30

Review time: 1 Hour

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
Re-review	<input 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

A well written and well organized review on the role of decellularized adipose stem cell matrix. Especially technical details and considerations upon methods of obtaining DAM, their advantages and disadvantages are very useful for researchers approaching the field. Comments In the introductory chapter, maybe authors would like to consider ECM is indeed a very important stem cell niche component however I am not sure it can be ranked the most important. Biochemical cues physical parameters as well as cellularity are equally important. The use of decellularized tissue/organ matrix with its pro and contras could benefit a more detailed comparison with DAM. Maybe presenting the advantages and disadvantages of supportive scaffolds compared to DAM within a summary table would be of use. In the literature search chapter I think it would be good to provide the Boolean terms used (if it is the case) as results can differ if different terminology and command words are used. Filters for advanced search would need as well specification. For the chapter dedicated to methods of preparation, the summary table 1 with methods of obtaining DAM are very technically detailed, of great use for researchers especially table 2 including advantages and disadvantages of the respective method and citations greatly improve reader s overview. In the chapter dedicated to assessment of properties of DAM, it would be good to include equipment necessary for mechanical testing and a brief overview of the procedure. In my opinion histological and IHC evaluation of collagen presence inside the sample is indeed useful for obtaining information about collagen presence but does not offer an insight on the quality of this proteins which might be degraded during processing while still present for staining. Staining should maybe belong to a chapter of assessing DAM structure. EM determines the presence of matrix fibers, do indeed offer information about their structural integrity and can offer an approximation about



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presumptive physical proprieties that could be obtained by mechanical testing. This chapter should maybe divided in one related to DAM structure – EM, histology IHC and mechanical properties. The later should mention the use of AFM in assessing mechanical properties (see Perea-Gil, 2015) Chapter biocompatibility; LIVE/DEAD assay is not based on fluorescein but on polyanionic dye calcein for live cells, and on EthD-1 for dead cells. A brief chapter dedicated to sources of adipose tissues for obtaining DAM of human and animal origin. Authors mention within the introductory chapter lipoaspirate, however harvesting this tissue requires hydrodissection as well as mechanical trituration that destroy ECM. Are there comparative studies between DAM obtained from different sources (lipectomy versus lipoaspirate for example?) The main author of the article regarding the pilot study in human dorsal wrist implantation is not Lauren but Kokai.