

ESPS PEER REVIEW REPORT

Name of journal: World Journal of Stem Cells

ESPS manuscript NO: 13013

Title: Vibration stimuli and the differentiation of musculoskeletal progenitor cells – review of results in vitro and in vivo

Reviewer code: 02446122

Science editor: Xue-Mei Gong

Date sent for review: 2014-08-02 10:11

Date reviewed: 2014-09-22 16:01

CLASSIFICATION	LANGUAGE EVALUATION	RECOMMENDATION	CONCLUSION
<input type="checkbox"/> Grade A: Excellent	<input type="checkbox"/> Grade A: Priority publishing	Google Search:	<input checked="" type="checkbox"/> Accept
<input type="checkbox"/> Grade B: Very good	<input checked="" type="checkbox"/> Grade B: Minor language polishing	<input type="checkbox"/> Existing	<input type="checkbox"/> High priority for publication
<input checked="" type="checkbox"/> Grade C: Good	<input type="checkbox"/> Grade C: A great deal of language polishing	<input type="checkbox"/> No records	<input type="checkbox"/> Rejection
<input type="checkbox"/> Grade D: Fair		BPG Search:	<input type="checkbox"/> Minor revision
<input type="checkbox"/> Grade E: Poor	<input type="checkbox"/> Grade D: Rejected	<input type="checkbox"/> Existing	<input type="checkbox"/> Major revision
		<input type="checkbox"/> No records	

COMMENTS TO AUTHORS

The manuscript submitted by Edwards and Reilly reviews the results of in vitro and in vivo studies using vibration stimuli to improve bone mineral density. They first report the data of human and animal experiments and then present what has been published concerning cultured cells. The manuscript is well-written, clear and interesting. The experimental approach consisting in using vibrations is original but poorly known. There is therefore a need for clear and thorough reviews on this subject. Authors should however make some modifications. In the introduction, in general authors must cite more important references, pioneer work and not recent studies or reviews. For instance, authors must cite the articles that have characterized MSC number, culture conditions and differentiation capacity for the first time. For instance, Pittenger MF, Science 1999 should be cited. Authors should begin the chapter on the effects of vibrations on osteoblast differentiation with studies that have reported an effect on differentiation and/or matrix deposition, and not by an article only showing changes in NO and PGE2 production, which are difficult to link to a putative change in osteoblast activity. Authors must indicate which receptors are P2XR (page 17).

ESPS PEER REVIEW REPORT

Name of journal: World Journal of Stem Cells

ESPS manuscript NO: 13013

Title: Vibration stimuli and the differentiation of musculoskeletal progenitor cells – review of results in vitro and in vivo

Reviewer code: 01213075

Science editor: Xue-Mei Gong

Date sent for review: 2014-08-02 10:11

Date reviewed: 2014-10-05 16:04

CLASSIFICATION	LANGUAGE EVALUATION	RECOMMENDATION	CONCLUSION
<input type="checkbox"/> Grade A: Excellent	<input type="checkbox"/> Grade A: Priority publishing	Google Search:	<input type="checkbox"/> Accept
<input type="checkbox"/> Grade B: Very good	<input checked="" type="checkbox"/> Grade B: Minor language polishing	<input type="checkbox"/> Existing	<input type="checkbox"/> High priority for publication
<input checked="" type="checkbox"/> Grade C: Good	<input type="checkbox"/> Grade C: A great deal of language polishing	<input type="checkbox"/> No records	<input type="checkbox"/> Rejection
<input type="checkbox"/> Grade D: Fair		BPG Search:	<input type="checkbox"/> Minor revision
<input type="checkbox"/> Grade E: Poor	<input type="checkbox"/> Grade D: Rejected	<input type="checkbox"/> Existing	<input type="checkbox"/> Major revision
		<input type="checkbox"/> No records	

COMMENTS TO AUTHORS

This review manuscript provided a brief overview of the both in vivo data and in vitro works on the use of low magnitude, high frequency vibration (LMHFV) to improve bone structure and muscle performance in a variety of different patient groups. The authors mentioned that “this manuscript is not intended to be a meta-analysis or a comprehensive review of all studies in this area, but rather to indicate how much further interdisciplinary research needs to be done before we can elucidate the effects of vibration on stem cells.” Therefore, this review provided a brief summary of some previous studies on LMHFV. They included osteoporosis, osteogenesis imperfecta, fracture healing, etc. and some animal models and cell studies. Most of the statements were briefly descriptive. No further comparison or comments on such reports. There was also no summary notes from these studies. Therefore, the readers need to digest by themselves before reaching any conclusion. The authors may need to provide some analysis, comments or remarks from these works. Such an article in current status may not be considered to be published in the ESPS.

ESPS PEER REVIEW REPORT

Name of journal: World Journal of Stem Cells

ESPS manuscript NO: 13013

Title: Vibration stimuli and the differentiation of musculoskeletal progenitor cells – review of results in vitro and in vivo

Reviewer code: 02567328

Science editor: Xue-Mei Gong

Date sent for review: 2014-08-02 10:11

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CLASSIFICATION	LANGUAGE EVALUATION	RECOMMENDATION	CONCLUSION
<input type="checkbox"/> Grade A: Excellent	<input type="checkbox"/> Grade A: Priority publishing	Google Search:	<input type="checkbox"/> Accept
<input type="checkbox"/> Grade B: Very good	<input checked="" type="checkbox"/> Grade B: Minor language polishing	<input type="checkbox"/> Existing	<input type="checkbox"/> High priority for publication
<input checked="" type="checkbox"/> Grade C: Good	<input type="checkbox"/> Grade C: A great deal of language polishing	<input type="checkbox"/> No records	<input type="checkbox"/> Rejection
<input type="checkbox"/> Grade D: Fair	<input type="checkbox"/> Grade D: Rejected	BPG Search:	<input type="checkbox"/> Minor revision
<input type="checkbox"/> Grade E: Poor		<input type="checkbox"/> Existing	<input checked="" type="checkbox"/> Major revision
		<input type="checkbox"/> No records	

COMMENTS TO AUTHORS

In this review the authors provide an overview of the in vivo and in vitro studies about the low magnitude, high frequency vibration (LMHFV). The topic of the review is very interesting, especially in view of a possible therapeutic application of this technique for musculoskeletal pathologies. The authors consider the LMHFV a valid alternative to biochemical agents used to stimulate cells (especially mesenchymal stem cells (MSCs)), as these substances could have systemic effects and often are too expensive. In my opinion, the authors have not sufficiently explored the negative effects of LMHFV, a technique based only on a mechanical stimulation. For example, mechanical stimulation may be a source of stress for cells and therefore any observed changes may not be the result of a real change in the cell but only a response to stress. Also studies on LMHFV show that the conditions that must be applied are very different from man to animal, and from cell type to another. How to be able to disentangle in this huge amount of informations? It should have a standard to which researchers could refer in order to compare their results and make their comments and observations. The manuscript is a continuous list of studies in which the authors report and summarize the results obtained in the cited articles. A greater personal contribution to the work in terms of criticism about the studies reported is required to the authors. The Running title is not appropriate. What it means "Vibration of stem cells"? The authors describe in the review the effects of vibration in different type of cells and don't describe the vibration observed in stem cells Furthermore in Core Tips and in

Abstract the authors refer that the review will be focused on the effects of LMHFV on differentiation of mesenchymal stem cells (MSCs). But most of the studies described in the manuscript concern cell lines different from MSCs for example MC3T3-E1 cell line, a murine osteoblast precursor line (pag 16 and pag17), MLO-Y4 osteocyte-like cells (pag 16), RAW264.7 murine osteoclast-like cells (pag 17), C3H10T1/2 cell from 14- to 17-day-old C3H mouse embryos (pag 18), 3T3-L1 pre-adipocyte cells, an embryonic derived cell line (pag 18), C2C12 murine myoblasts (pag 19), SAOS-2 cells, a human osteosarcoma cell line (pag 20), hES-MP 002.5 human embryonic stem cells, human laryngeal fibroblasts (pag 21). Few studies are reported for MSCs : rat MSCs (pag 19), human MSCs (pag 20), human adipose derived stem cells (pag 21), human periodontal ligament cells (pag 21) Pag 7 line 6: Please add reference Pag 7 line 19: Please add reference Pag 5 line 15 the authors state: "Allogeneic MSCs may still cause a rejection response". Solid evidence is found in literature that demonstrate the use of allogeneic MSCs without adverse effects. Pag 8 lines 4-8:" One study in disabled children speculated that the variation in posture of the children during vibration therapy may have been one factor in the relatively minor benefits seen [32], suggesting that transmissibility is an important an unresolved issue mRNA levels of markers of osteogenic activity are often measured, as well as the density of bone in different regions." Please clarify the phrase. Pag 8. The title of the paragraph "Osteoporosis" doesn't fit with its content. In fact in this paragraph the authors describe the effects of LMHFV in young healthy patients and jump height, healthy students and bed rest, disabled but ambulant children ecc and only at page 10 the authors described effects of LMHFV on an animal model of osteoporosis Pag 11 line 9: Please specify what it means SHAM animals. Pag 12: Please change title of paragraph "Osteogeneis Imperfecta" in "Osteogenesis imperfecta" and also at the line 1 of this paragraph change "Osteogenisis imperfecta" in "Osteogenesis imperfecta" and add reference for this pathology. Pag 14 line 25: Please specify what it means osteogenic MSC Pag 14 line 29: Please change "raitio