



**PEER-REVIEW REPORT**

**Name of journal:** World Journal of Stem Cells

**Manuscript NO:** 47498

**Title:** Microfluidic 3D cell culture of stem cells for high-throughput analysis

**Reviewer's code:** 02566952

**Reviewer's country:** Romania

**Science editor:** Ying Dou

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**Review time:** 1 Hour

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 checked="" type="checkbox"/> Grade B: Very good	<input checked="" 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**

A well written good conceived manuscript introducing the role and use of three-dimensional microsystems for in vitro cell culture of stem cells aiming compound screening for drug discovery. Comments In the chapter, the paragraph starting from "therefore 2D cell cultures and ending in "for these reasons" could use a rephrasing



**Baishideng  
Publishing  
Group**

7041 Koll Center Parkway, Suite  
160, Pleasanton, CA 94566, USA  
**Telephone:** +1-925-223-8242  
**Fax:** +1-925-223-8243  
**E-mail:** [bpgoffice@wjgnet.com](mailto:bpgoffice@wjgnet.com)  
**https://**[www.wjgnet.com](http://www.wjgnet.com)

(especially of the phrase starting with however that reads somehow unclear). In the chapter 3D microfluidics for stem cell engineering , I miss an initial display of most important methods used for this purpose. Reader is referred to Table 1, however a phrase stating which exactly are this modality before proceeding to describe them would be beneficial, or at least stress them out within the text when describing them. What is that authors call repetitively within the manuscript “stem cell engineering”? Do they refer to an eventual process of modifying stem cells or they rather mean tissue engineering? Please describe as the terminology is not common in the literature. In the chapter 3D TISSUE MODEL FOR STEM CELL ENGINEERING the introductory part is rather confusing. In which way the basic stem cell proprieties (proliferation and differentiation) are more functional and ideal”that immortalized cells and how stem cells readily mimic the architecture and specific function of human organs ? Regarding iPSC based modeling of disease it is useful to mention this modeling function well for disease that involve inherited or acquired gene expression but this does not meal all the diseases can be modelled using this method. Interesting denomination of top bottom and bottom top approaches in microfluid modeling. In this line it would be even better to further remain consequent with this idea and explain in which category the further described technology fall (organ on a chip and organoid on a chip) The authors make a very well documented and supported case (even though the organization could be improved) for the use of microfluidic devices and ighthroughput methods of investigation. It is understandable that for drug screening this is a remarkable modality of accelerating drug development with potentially reducing costs. However, due to the challenges the eutors themselves describe regarding the “sensitivity “of stem cells to the unnatural conditions posed by a microfluidic device, how can tests about stem cell propriety be reliable? Are the authors aware of comparative studies describing in parallel results obtained from a classical modality of investigating certain stem cell



**Baishideng  
Publishing  
Group**

7041 Koll Center Parkway, Suite  
160, Pleasanton, CA 94566, USA  
**Telephone:** +1-925-223-8242  
**Fax:** +1-925-223-8243  
**E-mail:** bpgoffice@wjgnet.com  
**https://www.wjgnet.com**

feature and function compared to results obtained with microfluidic devices?

#### **INITIAL REVIEW OF THE MANUSCRIPT**

##### ***Google Search:***

- The same title
- Duplicate publication
- Plagiarism
- No

##### ***BPG Search:***

- The same title
- Duplicate publication
- Plagiarism
- No