Reviewer’s report

Title: A Novel Targeted Angiogenesis Technique Using VEGF Conjugated Magnetic Nanoparticles And In-Vitro Endothelial Barrier Crossing

Version: 1 Date: 17 Feb 2017

Reviewer: Savneet Kaur

Reviewer's report:

The study by Arokiaraj et al. describes the conjugation of magnetic nanoparticles (MNs) with vascular endothelial growth factor (VEGF) and demonstrates the capability of the MNs-VEGF to cross the endothelial barrier and in vitro angiogenesis. The pilot study presents an important method of targeted angiogenic therapy in ischemic areas using MNs coupled with VEGF.

However, I have the following concerns and suggestions:

1. The results are interesting but have been poorly described. They lack clarity of expression.

2. In the second experiment, the authors describe the movement of the HUVECs towards MNs conjugated with VEGF, however there is no quantification technique to assess how many cells actually migrate. This should be quantitatively assessed.

3. Why were the HUVECs modified to HUVEC spheroids for the experiments? This should be explained somewhere in the discussion or the methods.

4. In each experiment, the inclusion of controls consisting of only 'VEGF' and only 'MNs' (without VEGF) should be considered.

5. In the conclusion, the authors mention that the MNs could be controlled by magnetic force. However, I did not find any such demonstration in the results section. It would be worthwhile to see the results with varying magnetic force.

6. The manuscript needs language editing at some places. Eg. At some places, it is written as HUVEC cells, this should be corrected to only 'HUVECs' or 'HUVEC spheroids'

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes
**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

No

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

Yes

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

Not relevant to this manuscript

**Quality of written English**
Please indicate the quality of language in the manuscript:

Needs some language corrections before being published

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