



ESPS PEER-REVIEW REPORT

Name of journal: World Journal of Stem Cells
ESPS manuscript NO: 20720
Title: Mucosal-associated invariant T cells from induced pluripotent stem cells: A novel approach for modeling human diseases
Reviewer's code: 02446120
Reviewer's country: Argentina
Science editor: Yue-Li Tian
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Table with 4 columns: CLASSIFICATION, LANGUAGE EVALUATION, SCIENTIFIC MISCONDUCT, CONCLUSION. It lists various criteria like Grade A: Excellent, Priority publishing, Google Search, etc., with checkboxes for selection.

COMMENTS TO AUTHORS

Comments to authors: The manuscript "Mucosal-associated invariant T (MAIT) cells from iPS cells: A novel approach for modeling human diseases", by C. Sugimoto et al., describes a method to generate human MAIT cells from induced pluripotent stem cells. In general, the work is interesting since it could be used to investigate the potential contribution of MAIT cells in bacterial infections; autoimmune or inflammatory diseases such as Crohn's disease and ulcerative colitis. In fact, MAIT cells are implicated in a variety of human diseases, though they are difficult to investigate due to their poor proliferative capacity; therefore the method to reprogram and re-differentiate MAIT cells may be of interest for therapeutic purposes. The authors obtained MAIT cells from umbilical cord blood in which they introduced the reprogramming factors: Oct4, Sox2, Klf4, and c-Myc by gene transduction with Sendai virus (SeV) vectors. The use of Sendai Virus is important since it does not integrate into the host genome; so that there is no risk of altering host genome. Interestingly, according to their results, nearly 100% of MAIT-iPSCs re-differentiated into MAIT cell-like cells. Major points: - My main concern is that it is not clear what the novel findings are in the present work,



## BAISHIDENG PUBLISHING GROUP INC

8226 Regency Drive, Pleasanton, CA 94588, USA

Telephone: +1-925-223-8242

Fax: +1-925-223-8243

E-mail: [bpgoffice@wjgnet.com](mailto:bpgoffice@wjgnet.com)

<http://www.wjgnet.com>

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since the use of Sendai virus vectors to reprogram different cell types has been reported already. The authors should clearly specify what is new in their work in comparison with other related works (ie Nishimura T, et al. Cell Stem Cell 2013, or Vizcardo R, et al., Cell Stem Cell. 2013). - The work is interesting though it is mostly a methodological description with a possible, potential, clinical application; though, there are no scientific hypotheses or experiments in it. Minor points: - Pag. 2: "abstract", authors please change. - Pag. 2: "It helps elucidate the underlying mechanisms and eventual development of therapy". Authors, please check the paragraph. - I would suggest to revise the English writing through the whole manuscript.