



PEER-REVIEW REPORT

Name of journal: World Journal of Stem Cells

Manuscript NO: 57854

Title: Perspectives of pluripotent stem cells in livestock

Reviewer's code: 02948419

Position: Peer Reviewer

Academic degree: MD, MSc, PhD

Professional title: Professor

Reviewer's Country/Territory: Ukraine

Author's Country/Territory: India

Manuscript submission date: 2020-06-26

Reviewer chosen by: Le Zhang

Reviewer accepted review: 2020-07-20 07:18

Reviewer performed review: 2020-07-20 07:36

Review time: 1 Hour

Scientific quality	<input type="checkbox"/> Grade A: Excellent <input type="checkbox"/> Grade B: Very good <input checked="" type="checkbox"/> Grade C: Good <input type="checkbox"/> Grade D: Fair <input type="checkbox"/> Grade E: Do not publish
Language quality	<input type="checkbox"/> Grade A: Priority publishing <input checked="" 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 checked="" 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



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SPECIFIC COMMENTS TO AUTHORS

Authors reported well written narrative review article in which livestock of iPS cells is widely considered. The article is logically structured and novel information is given in clear and concise manner. The strengths of the paper are high clarity and well designed figures that are very attractive for readers and the paper will be cited. The weakness is narrative manner of the paper. Methodological aspect of reproduction, cultivation, harvesting etc are described comprehensive. The plagiarism was not detected. The conclusive part is powerful to understand current challenging and perspectives in the future. Major concerns: None Minor concerns: Some grammar errors (contributed instead contributed to etc.) and typos. Please, check and correct them Genom editing tool can be reported in separate subparagraph with unique title.



PEER-REVIEW REPORT

Name of journal: World Journal of Stem Cells

Manuscript NO: 57854

Title: Perspectives of pluripotent stem cells in livestock

Reviewer's code: 03773730

Position: Editorial Board

Academic degree: PhD

Professional title: Associate Professor

Reviewer's Country/Territory: China

Author's Country/Territory: India

Manuscript submission date: 2020-06-26

Reviewer chosen by: Le Zhang

Reviewer accepted review: 2020-08-16 13:38

Reviewer performed review: 2020-08-22 02:07

Review time: 5 Days and 12 Hours

Scientific quality	<input type="checkbox"/> Grade A: Excellent <input type="checkbox"/> Grade B: Very good <input type="checkbox"/> Grade C: Good <input checked="" type="checkbox"/> Grade D: Fair <input type="checkbox"/> Grade E: Do not publish
Language quality	<input type="checkbox"/> Grade A: Priority publishing <input checked="" 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 type="checkbox"/> Minor revision <input checked="" type="checkbox"/> Major revision <input type="checkbox"/> Rejection
Re-review	<input checked="" 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



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SPECIFIC COMMENTS TO AUTHORS

This manuscript summarized the current achievements in derivation of PSCs from farm animals and discussed the potential applications. While there are still some key references missed and these advances of research area is important in pluripotent stem cell research. The comments are as follow: Major concern: 1. Pluripotent stem cell generation by reprogramming germline stem cells such as spermatogonial stem cell and female germline stem cell, the author should contain these references related research in the text, these references are: 1) Guan K, Nayernia K, Maier LS, Wagner S, Dressel R, Lee JH, Nolte J, Wolf F, Li M, Engel W, Hasenfuss G. Pluripotency of spermatogonial stem cells from adult mouse testis. *Nature* 2006; 440:1199-1203. 2) Kanatsu-Shinohara M, Inoue K, Lee J, Yoshimoto M, Ogonuki N, Miki H, Baba S, Kato T, Kazuki Y, Toyokuni S, Toyoshima M, Niwa O, et al. Generation of pluripotent stem cells from neonatal mouse testis. *Cell* 2004; 119:1001-1012. 3) Ko K, Tapia N, Wu G, Kim JB, Bravo MJ, Sasse P, Glaser T, Ruau D, Han DW, Greber B, Hausdorfer K, Sebastiano V, et al. Induction of pluripotency in adult unipotent germline stem cells. *Cell Stem Cell* 2009; 5:87-96 4) Wang H, Jiang M, Bi H, Chen X, He L, Li X, Wu J. Conversion of female germline stem cells from neonatal and prepubertal mice into pluripotent stem cells. *J Mol Cell Biol* 2014; 6:164-171. 5) Lee SW, Wu G, Choi NY, Lee HJ, Bang JS, Lee Y, Lee M, Ko K, Schöler HR, Ko K. Self-Reprogramming of Spermatogonial Stem Cells into Pluripotent Stem Cells without Microenvironment of Feeder Cells. *Mol Cells*. 2018 Jul 31;41(7):631-638. 2. Reprogramming and transdifferentiation are the two mainly aspects in stem cell related research, so the author should at least discuss their relationship as the reference suggested (Jingjing Guo 1, Hu Wang, Xingchang Hu. Reprogramming and transdifferentiation shift the landscape of regenerative medicine. *DNA Cell Biol* 2013 Oct;32(10):565-72. doi: 10.1089/dna.2013.2104. Epub 2013 Aug 9.) 3. Haploid stem cell is hot in the field of stem cell reseach at present (Cui T, Li Z, Zhou Q, Li W. Current



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advances in haploid stem cells. *Protein Cell*. 2020 Jan;11(1):23-33. doi: 10.1007/s13238-019-0625-0. Epub 2019 Apr 19.), it may provide a new resource to generate transgenic modified animal models, therefore, it also need to be carefully addressed in the manuscript. 4. The author mentioned germ cell generation by pluripotent stem cells, there are many different originated stem cell-related germ cell protocol for in-vitro derivation strategy, the reference (Zeng F, Huang F, Guo J, Hu X, Liu C, Wang H. Emerging methods to generate artificial germ cells from stem cells. *Biol Reprod*. 2015 Apr;92(4):89.) 5. The author should add some ethical concerns about chimeric research that we may need to address or pay attention in the near future of biological research in the text.



RE-REVIEW REPORT OF REVISED MANUSCRIPT

Name of journal: World Journal of Stem Cells

Manuscript NO: 57854

Title: Perspectives of pluripotent stem cells in livestock

Reviewer's code: 03773730

Position: Editorial Board

Academic degree: PhD

Professional title: Associate Professor

Reviewer's Country/Territory: China

Author's Country/Territory: India

Manuscript submission date: 2020-06-26

Reviewer chosen by: Jia-Ru Fan

Reviewer accepted review: 2020-09-29 10:57

Reviewer performed review: 2020-09-29 11:23

Review time: 1 Hour

Scientific quality	<input type="checkbox"/> Grade A: Excellent <input type="checkbox"/> Grade B: Very good <input checked="" type="checkbox"/> Grade C: Good <input type="checkbox"/> Grade D: Fair <input type="checkbox"/> Grade E: Do not publish
Language quality	<input type="checkbox"/> Grade A: Priority publishing <input checked="" 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
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

Although the author revised a lot based on the reviewer's comments, there are still have



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some concerns need to be further revised, we need summarize the exact information to the readers. Here is the concern below: Although the author adds germline stem cell derived pluripotent stem cell related development in the text, some of the words used are not accurate based on the knowledge from reviewer at present. As we know, germline stem cell is a class of unipotent stem cell reside in the gonad (testis and ovary), in normal environment, these kind of tissue stem cell only can differentiate into germ cell, based on the gene expression profiling from these two types of tissue stem cell, we can clearly see these two types of are unipotent. While germline lineage makes them, little difference compared with other tissue reside stem cell, they can expand in vitro and converted from unipotent to pluripotent state just under specific culture conditions. Therefore, the author should clearly present SSC and FGSC as well are two unipotent stem cells, and we can manually convert these two unipotent stem cells into pluripotent stem cell in vitro under specific condition. This conversion strategy was used to generate pluripotent stem cell like the iPSC generation, but not for the infertility treatment. Therefore, the author should revise them.