Reviewer's report

Title: Identification and Ranking of Recurrent Neo-Epitopes in Cancer

Version: 0 Date: 30 Jul 2019

Reviewer: Zhi-Ping Liu

Reviewer's report:

In this paper, the authors proposed a study about identifying the neo-epitopes in cancer by using the open TCGA datasets. It is a good topic for identifying the neo-epitopes for personalized cancer immunotherapy. However, some issues need be addressed in this version. The following lists some comments.

1. The methods. It is very unclear for the steps (especially the methods employed) in ranking the neo-epitopes. For instance, the SNV is obtained by the "mutect2" pipeline. What is the mutect2 pipeline? Is it a published method/software/function for screening out the SNVs? How to do the quality controls of the identifications. Many other steps/methods need be introduced in details for introducing the methods.

2. The results. The main results is about these identified neo-epitopes. The question is how to evaluate them. I suggest use a known set of neo-epitopes to evaluate the identification methods. Any other strategy can also identify some neo-epitopes. The accuracy of proposing method need be obtained to show its efficacy. It cannot evaluate the results. As pointed out, the results contains false positives. It is good to provide evidence that there are some true positives in the results.

3. This paper seem to identify the neo-epitopes by pan-cancer analysis. There are many types of cancer and each of them contains specificity. It is good to classify the specific/general identification of neo-epitopes in cancers.

4. A minor comment is that the results need be open for academic usage.

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

No

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

Yes

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:

Acceptable

**Declaration of competing interests**
Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?

If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

I declare that I have no competing interests

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license ([http://creativecommons.org/licenses/by/4.0/](http://creativecommons.org/licenses/by/4.0/)). I understand that any comments
which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal