Reviewer's report

Title: Screening key genes for abdominal aortic aneurysm based on Gene Expression Omnibus dataset

Version: 2 Date: 21 Dec 2017

Reviewer: Lei Tian

Reviewer's report:

The authors detected key genes for abdominal aortic aneurysm (AAA) based on multiple public gene expression datasets with bioinformatic data analysis. They further validated their results with immunohistochemistry and ROC curve analysis. In conclusion, they found some potential diagnostic biomarkers and 3 potential drug targets for AAA.

It is an interesting study, and this study provides insight of relationship between vascular smooth muscle contraction and AAA. However, I have the following comments and suggestion which might further improve the study:

1. Please compare the results with previous studies. E.g. the overlapping of DEGs, enriched pathways.

2. There are much more down-regulated DEGs than up-regulated DEGs, is this because of less normal individuals with a higher false positive rate for down-regulated DEGs detection? What if the authors sample equal numbers of individuals in both groups? Authors should at least mention this issue in the manuscript.

3. What does "+" mean in Table 1 at Samples column? How many patients are included in GSE57691?

4. The fold changes should be presented in Table 2.

5. Please state which enriched pathways are up/down-regulated. E.g. the proportion of up-regulated genes in all genes assigned to a pathway.

6. P.6 line 174: bioinformatics —→ bioinformatic
7, P.13 line 266: diagnosis biomarker —> diagnostic biomarkers

8, Overall, the language needs to be improved. Some phrases needs to be modified.

**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.

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.

I am able to assess the statistics

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

Acceptable
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