Reviewer's report

Title: Atrial fibrillation alters the microRNA expression profiles of the left atria of patients with mitral stenosis

Version: 2 Date: 18 November 2013

Reviewer: Zhiguo Wang

Reviewer's report:

- Major Compulsory Revisions

1. The authors used signal intensities as a filter of microarray data for miRNA inclusion for further studies. The validity of this approach is highly questionable, as microarray results are definitely not quantitative and any difference in signal intensity may merely represent the hybridization efficiency under a given experimental condition but not the quantity of the target genes. The problems associated with your approach may be: (1) misuse of array data as quantitative results, (2) exclusion of some important miRNAs for your analysis in depth and (3) inclusion of miRNAs that are actually low-abundant ones (I bet miR-466, miR-574, and miR-3613 are all low-abundance miRNAs in heart). Moreover, use of expression level of miRNAs to indicate the relative strength of cellular function is obviously oversimplified; we now know that many extremely low-abundant miRNAs play a big role in certain physiological functions with impressive magnitudes of changes of phenotypes. I suggest the following: (1) remove the intensity filter and include all miRNAs in your analysis and (2) provide the cycle numbers of qPCR for the ones included in quantitative measurement.

2. I suggest the authors to give a detailed comparative discussion on the study by Xiao et al (Physiol Genomics 2011, 43(11):655-664) as it is the most relevant study in the literature. In particular, comparison between right and left atrium should be given to highlight the importance of your study.

3. Another limitation of the study is the small sample size for highly heterogeneous human tissues, as also being well aware of by the authors. I suggest including more clinical information in Table 1, such as blood pressure, other heart diseases, current smoking, ect.

- Minor Essential Revisions

The manuscript is in general well written, but in many occasions, the descriptions/statements are not sufficiently clear in terms of the expression and style. I suggest the authors to go through carefully the manuscript and make any necessary changes or polishing to improve the work.

- Discretionary Revisions

1. Remove the intensity filter and include all miRNAs in your analysis;
2. Provide the cycle numbers of qPCR for the ones included in quantitative measurement.

3. Give a detailed comparative discussion on the study by Xiao et al (Physiol Genomics 2011, 43(11):655-664) as it is the most relevant study in the literature. In particular, comparison between right and left atrium should be given to highlight the importance of your study.

4. Include more clinical information in Table 1, such as blood pressure, other heart diseases, current smoking, etc.

5. Double check through the manuscript and make any necessary changes of expression and syntax.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Needs some language corrections before being published

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare that I have no competing interests' below.