Reviewer's report

Title: Sho-saiko-to, a traditional herbal medicine, regulates gene expression and biological function by way of microRNAs in primary mouse hepatocytes

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Reviewer: chang gue Son

Reviewer's report:

Authors had tried to investigate the pharmacological mechanisms of an herbal extract (Sho-saiko-to, SST) using a genome-wide approach. The present manuscript contain potential data, however, it have failed to show the concrete and meaningful findings explaining the pharmacological mechanisms of SST. I suggest that the current manuscript should be revised intensively before considering publication for following issues.

1. Major Compulsory Revisions

1) The detail informations for experimental design should be provided, especially for sample number of each group at each time point. In addition, number of hepatocyte cells should be indicated at initial time point of primary cell culture.

2) Even though many studies have been conducted using SST, each group should do their own screening test because each set of experiment (primary cell culture, drug preparation et al) could be different. Thus, authors need to present the process for the decision of drug-treatment concentration. The dose of drug (500ug/ml) is generally too high for in-vitro experiment.

3) As the most important issue in this manuscript, the current manuscript contains just plenty of data, but have failed to present the simple and/or clear answer for their original experimental question (pharmacological mechanisms). No matter how many data authors show, they have to show the biologically meaningful result which was confirmed by other assays (in two aspects of data itself using QPCR and protein assay, and confirmative assay such as siRNA). At least, they need to extract the most potential candidate genes which is very supportive the explanation of the well-known function of SST.

4) In discussion section, authors should discuss mainly their concrete findings (mechanism-expaining genes) which are very relevant to pharmacological effects of SST from others’ experiments. Therefore, those data in this manuscript could be valuable and interesting for other readers. The present description seems to be a just methodological article.

2. Minor Revisions

1) Refernces should be selected morelogically. For example, [2-9] is involved in a sentence.

2) This study would be not a pharmaceutical study, but rather pharmacological one.
Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests' below