Reviewer’s report

Title: Acteoside inhibits inflammatory response via JAK/STAT signaling pathway in osteoarthritic rats

Version: 1 Date: 09 Jun 2019

Reviewer: Naveenkumar Chandrashekar

Reviewer's report:

The manuscript "Acteoside inhibits inflammatory response via JAK-STAT signaling pathway in osteoarthritis rats" by Qiao and colleagues investigates the therapeutic effects of acteoside, a major herbal component on inflammatory cytokines correlates with JAK/STAT signalling axis and joint protection in surgery-induced osteoarthritis in rats.

The main idea of manuscript is interesting, study is well designed, results are presented straight, but I have some concerns regarding suitability of the manuscript for publication. The author's response to the following concerns is essential and may use the suggestions below in revising their manuscript.

Major issues

1. The important concern is centred on animal experiments.
   (1) The rationale for the in vivo dose of acteoside is not clearly stated. On what basis dose selection of acteoside in rats was chosen, justification is required.
   (2) The concentration of acteoside (100mg/kg body weight) tested appear to be high. Authors should discuss regarding potential side effects of such high concentrations on different organs.
   (3) The authors mentioned that the treatment of acteoside was started after 4 weeks of surgery. Why the resting period of 4 weeks was given for rats after surgery?

2. The other important concern is on histological studies.
   (1) Knowledge about the histological pattern of the tissue is important for diagnostic reasons and the understanding of the development of osteoarthritis. There is a lack of data relating the microscopic appearance of cartilage to its histological properties. In addition, there is a lack of data relating to the substantial changes in articular cartilage composition during the treatment and development of osteoarthritis.
Minor issues
1. The methods make no statement or unclear whether the cell line has been authenticated for the study or not?

2. In the methods section, it is unclear about the solubility of acteoside used? Which vehicle is used to solubilize the acteoside?

3. In the results section, the figures should be made clearer using the appropriate graphing software and the image quality for some of the figures is poor.

4. The Figure legends should include detailed information on the number of technical and biological replicates used.

5. Did the authors check the Gaussian distribution of the data before applying ANOVA statistics?

6. Manuscript needs English revision and needs to be rectified by a native English speaker.

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:

Needs some language corrections before being published
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/). 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