Reviewer’s report

Title: Standardized Herbal Extract PM014 Alleviates Fine Dust-Induced Lung inflammation in Mice

Version: 2 Date: 29 Apr 2020

Reviewer's report:

In their work, "Standardized Herbal Extract PM014 Alleviates Fine Dust-Induced Lung inflammation in Mice", Lee et al have evaluated the effect of PM014 on fine dust-induced lung inflammation. They showed that PM014 reduced the damage to the tissues and the infiltration of inflammatory cells, in addition to decreasing the expression of some pro-inflammatory cytokines. Although the results are significant and clearly represented, I'm not that they are enough to completely assume that PM014 indeed alleviates inflammation.

I have several concerns.

1. In figure 1, the authors are showing that PM014 is decreasing the immune cells infiltration. It isn't really clear in the figures. It would be better if the authors refer to the infiltrated immune cells by arrows to clarify the difference between all the conditions, which is not really prominent in the current figures.

2. In figure 2, the authors have showed the count of the different types of immune cells in the bronchoalveolar fluid. In the Materials and methods, they indicated that the immune cells were stained and counted under the microscopy. How did the authors really distinguish between all the types of immune cells and sort them? Is it only by eye under the microscopy (which is not enough for the assumption) or are there specific stained markers that shall be mentioned? A true vivid proof of immune cells infiltration to the lungs would be through measuring the expression levels of markers for the different immune cells by PCR in the tissue or the use of flow cytometry to detect the different populations in the fluid.

3. The description of the used model is not really clear. The authors said that on days 0,2,7,9 the mice were treated with PM014 followed by PM10. Day 0 corresponds to what? Is it the day of induction of inflammation by PM10 in all groups? And then starting day 2 the (PM10+PM014) groups were re-injected with PM10 following the PM014? A representative scheme of the different groups showing the treatments and timing will be better for clarification.

4. The authors indicated that they were injecting PM10 following PM014 to study the "prophylactic" effect of PM014. What is the usefulness of this "preventive" investigation clinically? Will people tend to use "preventive" medications for fine dust?

Minor comments:
5. The resolution of the graphs is really bad, and it's impossible to read all the labels of the X and Y axes.

6. Figure 3 legend: the authors indicated that "Data are expressed as mean number of cells ± standard error". However, it's a figure for the mRNA level and there are no cells, so this shall be corrected.

7. The authors mentioned that the optimal dosage of PM014 was chosen based on a preliminary dose-response experiment done in a previous publication. It would be useful to mention this idea in the materials and methods section to justify the choice of the dose for any future referring scientist going through the paper.

8. A small Grammatical Comment "A herb" not "An Herb".

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**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

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I am able to assess the statistics

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