Reviewer's report

Title: Protective effect of Xuebijing injection on paraquat-induced pulmonary injury via down-regulating the expression of p38 MAPK

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Reviewer's report:

I read the manuscript entitled “Protective effect of Xuebijing injection on paraquat-induced pulmonary injury via down-regulating the expression of p38 MAPK in rats” submitted to BMC Complementary and Alternative Medicine for possible publication.

In this study, the author investigated the protective effect of Xuebijing on paraquat induced acute lung injury in vivo. They demonstrate that Xuebijing ameliorated the inflammatory reaction by inhibiting p38 MAPK and NF-κB and attenuated lung injury by suppressing oxidative stress and fibrotic process. So far Xuebijing has been reported to protect against endotoxin induced acute lung injury by blunting vascular leak and inflammatory reaction. Furthermore, it exerted preventing effect on stress-induced organ damage. From this point of view, this study contains a novel finding that Xuebijing play a protective role relating to p38 MAPK and NF-κB. On the other hand, I also think that there are several issues to be clarified and approached to improve the manuscript.

Major points:

1. The dose of paraquat: in abstract, the author described that paraquat was intraperitoneally injected by 35mg/kg. However, in “animal groups and drug administrations” in materials and methods, the dose of paraquat was 10mg/kg. Why?

2. The dose of Xuebijing: why the author chose 2.5g/kg as the dose for Xuebijing? Is there any preliminary study for selecting the dose? Otherwise, the author should evaluate the protective effect of Xuebijing with different doses.

3. The model of acute lung injury: the author described that paraquat was intraperitoneally injected to induce acute lung injury. However, in “Xuebijing inhibited the expression of p-p38 MAPK, NF-κB65, HIF-1#, Nrf2 and TGF-κ1 in paraquat-induced lung tissue” in results, the author also described CLP challenge. Since CLP (cecal ligation and puncture) challenged acute lung injury is another model, it makes me quite confusing.

4. About lung histopathology: the description of lung injury score was unclear. The content of the score should be listed as a table. I wonder whether the histopathological evaluation score was made by the author.

5. In order to clarify the role of NF-κB p65 in acute lung injury, p-IκB# should also be tested in western blotting analysis.
6. The poor qualities of the lung pathological graphs and immunohistochemical staining graphs in figure 2 and figure 4. Furthermore, the standards were not visible.

7. The discussion should be rewritten to clarify the main points of the authors.

Minor points

1. It is necessary to add protein size marker in every blot.

2. The expression of paraquat + Xuebijing group should be in concord both in articles and in figures. NF-κB and NF-κκ65 both appeared in the article. I think the correct expression is NF-κB p65.

3. In paragraph 3 in background, “promote qi and blood circulation” should be corrected as “promote gas and blood circulation”.

4. In “Animal groupings and drug administration” in materials and methods, “ALI was induced by and intraperitoneal paraquat injection” should be corrected as “ALI was induced by an intraperitoneal paraquat injection”.

5. In paragraph 1 of “Xuebijing inhibited the activation of NF-κB65 in paraquat-induced lung tissue” in results, “At 48 h after Xuebijing administration, activation of NF-κB65 markedly inhibited the activation of NF-κB65 in the Xuebijing+paraquat group.” could not be understood.

6. In figure legend 4 and 5, “Data re expressed ” should be corrected as “Data are expressed”.

7. In the sixth paragraph of discussion, “the expression of p83MAPK” should be corrected as “the expression of p38 MAPK”.