Reviewer's report

Title: Red ginseng abrogates oxidative stress as mediated with mitochondria protection via LKB1-AMPK pathway

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Reviewer: Sung Hwan Ki

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Kim et al. described the preventive effect of red ginseng extract (RGE) on Iron plus AA- induced hepatocyte death and oxidative stress. RGE treatment effectively increased cell viability against iron plus AA, which was also supported by TUNEL staining and apoptosis marker gene expression. Moreover, RGE attenuated ROS generation and recovered intracellular GSH contents. They found that RGE inhibits mitochondria damage through LKB1-AMPk pathway. In general, the experiments are well designed and appear to be carefully carried out. However, many questions have to be addressed before publication, as can be seen from the following content.

Major comments

1. The authors used just 1 mg/ml of RGE except MTT analysis. The authors need to show dose dependency in some critical data and describe dose used is physiologically relevant.
2. In Figure 5C, authors should show total LKB1 protein level for the control of LKB1 knockdown.
3. The authors should use antibody detected total form of AMPK and ACC, not but beta-actin, for the p-AMPK and p-ACC throughout the paper.
4. The authors had better show the negative effect of CAMKK, which is another AMPK upstream kinase, to emphasize RGE-induced LKB-AMPK pathway.
5. The authors can add schematic diagram for the better understanding.

Minor comments

1. p8, important intercellular antioxidant --> important intracellular antioxidant.
2. p8, compared with control cells --> comparable to control cells.
3. p9, AML12 hepatoma cell lines --> AML12 immortalized hepatocytes.
4. p9, RGE protection of hepatovytes --> RGE protection of hepatocytes
5. There are many grammar and type error. The authors should edit manuscript carefully.
6. The authors should check reference carefully.

Level of interest: An article of importance in its field
Quality of written English: Needs some language corrections before being published

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
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