Reviewer's report

Title: Oligonol suppresses lipid accumulation and improves insulin resistance in a palmitate-induced cellular steatosis model

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Reviewer: Junetsu Ogasawara

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Comments

The purpose of present study was to investigate the effect of Oligonol on lipid metabolism in hepatic HepG2 cells. The research focus is interesting. However, the text includes some parts which are difficult to read. The manuscript should be proof read by someone with accomplished English skills. In addition, data obtained from the current study were mainly composed of the alteration in levels of mRNAs, which are related to lipid metabolism. These changes are poor marker of functions on several molecules, although phosphorylation evens were investigated in a subset of molecules. Authors should be done the additional experiments such as measurement of enzyme activities, i.e. CPT1## and determinate quantity of inflammatory cytokines which were released from cells to culture mediums. See also other comments as described below.

Major Comments

1. As identified above, in background section, authors should rewrite more concise and grammatically well-formed sentence.

2. In methods, why dose authors select ddH2O as a diluents? Lipophilic diluent, i.e. DMSO would be acceptable for dilution agent.

3. Authors should write clearly preparation methods of palmitate in methods.

4. Where is Table2?

5. In figure 2C, it looks unlikely to the densities of phosphorylated HSL has changed between control and PA with Oligonols (1, 5, and 10 #g/ml). Therefore, Oligonol-induced attenuation of cellular lipid content would mediate not only enhancing the lipolytic response but also reduction of lipogenic events.

6. As identified above, to solve this point, authors should measure the content of both FFA and glycerol, markers of lipolysis, in culture medium.

7. In figure 4, it is important to investigate Oligonol-induced alteration in secretion of IL-6 from HepG2 cell themselves. Authors should quantify levels of IL-6 in culture medium.

8. Authors do well to avoid using the words “strongly suggest” throughout the manuscript.

9. In the text, results and discussion was written in the same section. However, it is not concise. Separate discussion from results would be got through the matter
of the manuscript.
10. As defined above, the part of discussion should be rewritten more accomplished. Authors should avoid the expression of sentences, which are generally written by review article.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Not suitable for publication unless extensively edited

**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