Reviewer’s report

Title: Beneficial effects of Korean red ginseng on lymphocyte DNA damage, antioxidant enzyme activity, and LDL oxidation in healthy participants: A randomized, double-blind, placebo-controlled trial

Version: 2 Date: 10 April 2012

Reviewer: Vladimir Vuksan

Reviewer’s report:

Report;

Thank you for the responses to the concerns raised previously. The manuscript was significantly improved. Please find below additional comments to your responses.

1. Previous Comment-Major:
The design of the clinical trial failed to set out primary and secondary outcome measures. The authors proposed an overly large number of outcome measures (blood pressure, BMI, Total cholesterol, LDL, triglycerides, DNA damage, plasma SOD activity, plasma GPx, plasma catalase activity, oxidized LDL, urinary 8-epi-PGF, BUN, creatinine, CBC, AST and ALT). In addition power analysis is not provided (what parameter is the power based on?). The rationale for certain measurements and their significance in the context of the trial is also missing.

Answer: We selected the biomarkers and determined the number of subjects by following the criteria for the test of antioxidant/oxidative effect recommended by Korea Food and Drug administration (KFDA). According to the KFDA guideline, the first biomarker for the test of antioxidant/oxidative effect is DNA damage (i.e. tail moment and tail length) measured by comet assay and the second ones are antioxidant enzymes. If the net difference of the DNA damage before and after the intervention in the test group is at least 10% different from that in the placebo, we determined it is statistically significant different. Based on this concept, we calculated the power and the number of subjects following the formula.

New Comment 1:
Thank you for addressing the comments above from first submission. While the rationale for comet assay and antioxidant enzymes is sound, it still does not answer the concern with multiple outcome measures and does not provide rationales for them (ie Blood pressure, BMI, cholesterol etc). Secondly, the power analysis should be transparently described in the manuscript, as well as have primary and secondary outcomes clearly outlined.

2. Previous Comment: The background should differentiate pre-clinical and clinical research when describing that ginseng “is known to exert” a number of effects.
Answer: As you advised, we corrected it.

New Comment #2: While the background now provides citations for clinical and preclinical studies, the effects (i.e. antioxidant, antitumor, antimutagenic, and immunomodulatory) are still not differentiated between preclinical and clinical evidence. It should read: “Although a number of pre-clinical studies have reported medicinal benefits of KRG including antioxidant, antitumor, antimutagenic (10-12) and and a clinical study has reported immunomodulatory actions (13),…”

Additional new Comments:
- Lines 124-134 greatly resemble previously published journal article on Korean red ginseng. Please revise in your own words.

- Lines 311-312: This information is not fully correct, based on up to date sources. I.e. there are reports that >60 ginsenosides have been isolated from Panax quinquefolius.

(Lian-Wen Qi, et al. Ginsenosides from American ginseng: Chemical and pharmacological diversity Phytochemistry. 2011 June; 72(8))

**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:** Yes, but I do not feel adequately qualified to assess the statistics.