



Reply

Reply to the Letter to the Editor by Li et al.: Bioinformatics Analysis in Mice with Diet-Induced Nonalcoholic Steatohepatitis Treated with Astaxanthin and Vitamin E

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Reply:

Thank you for the valuable comments. The purpose of our study is not to prove the significant difference between the groups. We have already reported that astaxanthin (AX) alleviated high-cholesterol, high-choleate, and high-fat (CL) diet-induced NASH and it was more effective than vitamin E in preventing and treating NASH in mice [1]. In this paper, we showed possible molecular action of AX on CL diet-induced NASH. This is important for the safe use of AX as a new therapy. On this point, we do not think that we need to use “a fewer false positive method”, which may lead to a higher false negative rate. According to the statement released by the American Statistical Association, scientific conclusions should not be based only on whether a *p*-value passes a specific threshold [2]. In addition, we performed qPCR analysis and showed that astaxanthin significantly altered the mRNA expression associated with EIF2 signaling, mitochondrial dysfunction, PPAR α and PPAR γ . We think that further study is necessary to elucidate the molecular mechanism of AX and to establish a new therapy for patients with NASH.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Ni, Y.; Nagashimada, M.; Zhuge, F.; Zhan, L.; Nagata, N.; Tsutsui, A.; Nakanuma, Y.; Kaneko, S.; Ota, T. Astaxanthin prevents and reverses diet-induced insulin resistance and steatohepatitis in mice: A comparison with vitamin E. *Sci. Rep.* **2015**, *5*, 17192. [CrossRef] [PubMed]
2. American Statistical Association Releases Statement on Statistical Significance and *p*-Values. Available online: <http://www.amstat.org/asa/files/pdfs/P-ValueStatement.pdf> (accessed on 5 May 2017).



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