Reviewer’s report

Title: The association of circulating irisin with metabolic risk factors in Chinese adults: a cross-sectional community-based study

Version: 1 Date: 03 Sep 2019

Reviewer: Gangyi Yang

Reviewer's report:

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This is a very interesting large study on 524 nondiabetic subjects to investigate the association of serum irisin levels with metabolic parameters in middle aged Chinese population. The authors found that serum irisin levels were lower in overweight subjects. Moreover, serum irisin levels were inversely correlated with adverse metabolic parameters including WC, WHR, creatinine, HOMA-IR and fasting insulin, suggesting that irisin may play a role in obesity related insulin resistance. Thus, modification of circulating irisin level may help in the management of obesity and related metabolic diseases.

Overall, the study was well designed and conducted and the results are interesting and important. They systematically analyzed the relationship of serum irisin with full panel of traditional anthropometric, metabolic and cardiovascular risk measures which represents a prominent strength of the study. The paper is well written.

I have two minor suggestion.

In the Introduction section in the 2ed paragraph authors write: "Iisin is a recently discovered myokine, it is a cleaved membrane protein encoded by the fibronectin type III domain containing 5 (FNDC5) gene. Recent studies showed irisin can stimulate the expression uncoupling protein-1 (UCP-1), result in browning of white adipose tissue, thereby stimulating energy expenditure." Please cite appropriate references.

In the Results section, the authors wrote "Sex, age smoking, alcohol and medication use were adjusted for model", I suggest the authors added it in the statistical section and would you please explain why did you adjust for all these factors?

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes
**Does the work include the necessary controls?**  
If not, please specify which controls are required in your comments to the authors.

Yes

**Are the conclusions drawn adequately supported by the data shown?**  
If not, please explain in your comments to the authors.

Yes

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**  
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

**Quality of written English**  
Please indicate the quality of language in the manuscript:

Needs some language corrections before being published

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