Reviewer’s report

Title: Fructo-Oligosaccharides Ameliorate Steatohepatitis, Visceral Adiposity, and Associated Chronic Inflammation via Increased Production of Short-Chain Fatty Acids in a Mouse Model of Non-alcoholic Steatohepatitis

Version: 0 Date: 09 Dec 2019

Reviewer: Annette Brandt

Reviewer's report:

In this manuscript by Atsuko Takai et al. the authors demonstrate that fructo-oligosaccharides (FOS) are able to ameliorate NASH in a monosodium glutamate (MSG)-induced obesity model. This is an interesting study and the data support the authors conclusions, however, there are some questions that needs to be addressed:

Major comments:

To characterize the used MSG mouse model in more detail, is this mouse model comparable to ob/ob model? Do these mice similar to ob/ob mice have an enormous increased food intake? Moreover, the authors mentioning that the MCD-NASH model (which was used by the authors in a previous study) is not exhibiting obesity or insulin resistance, explaining the choice of the MSG-induced obesity and NASH model. To characterize this mouse model in more detail, do these mice also develop insulin resistance/altered glucose metabolism? (e.g. altered fasting blood glucose?) Is FOS-treatment in this study affecting this?

Are there mice also treated with FOS without receiving MSG-injection? Were there any effects compared to control mice?

The authors mentioning macroscopic fecal findings in figure legend of additional file 1, but it seems, that this is missing in the figure?

It should be explained in more detail, how the embedded epididymal fat was evaluated histopathologically to evaluate the size/structure of the fat.

Minor comments:

Labeling of the figures should be uniform, e.g. all of them should be organized using small letters (figure 3 and 5 dot not have) and this labeling should also appear in the figure legends.

Line 255: What do the authors mean with „….Displayed a better bacterial balance”? This should be explained.

Was the liver:body weight ratio evaluated?

p-values for bacterial composition of feces are missing (line 248…)
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.

No

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:

Acceptable

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