Reviewer's report

Title: MicroRNA-125a is overexpressed in insulin target tissues in a spontaneous rat model of Type 2 Diabetes

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Reviewer: FuDe Fang

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Overview,
In this manuscript, an attempt was made to provide the conclusion that miR-125a expression is increased in two insulin target tissues in hyperglycaemic rat model of T2D and further to give insights into microRNA-mediated regulation of gene expression such as, prediction miR-125a target genes involved in the MAPK signaling pathway, by array experiments and software prediction. The aim of the work was relatively clear, however all the results are short of experimental validation and then the conclusions could be questionable. In my opinion, this manuscript should not be published in the present form; however it could be reconsidered for publication if major amendments were done.

Major compulsory revisions,
The authors referred to these limits in validation of mRNA and miRNA in the discussion part, however relevant jobs need to be done,

1. About the miRNA data, although array has the virtue of high throughput analysis, its veracity and specificity need further be confirmed. The authors claimed that increased miR-125a expression may be a characteristic feature of hyperglycaemic rats, but the conclusion is short of further experimental validation. So the expression level of miR-125a in the liver and adipose tissue need to be confirmed.

2. Please provide the some differentially expressed gene (mRNA) lists about glucose and lipid metabolism in detail and further confirm their expression level by experiment like as the miRNA data.

3. For predicted target genes of miR-125a, experimental validation should be done, especially, about the association of miR-125a and some differentially expressed genes in the MAPK signalling pathway.

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

Quality of written English: Acceptable

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.