

Reviewer Report

Title: **Establishment of a *Macaca fascicularis* gut microbiome gene catalog and comparison with the human, pig and mouse gut microbiomes**

Version: **Original Submission** Date: 2/1/2018

Reviewer name: **Ilias Lagkouvardos**

Reviewer Comments to Author:

The study of Liang Xiao team, about the gene catalogue of macaques gut microbiome, is a well organized and executed project. The manuscript is clearly written and the findings well presented. Although no groundbreaking results are shown, the gene catalogue will enhance the inferring capacity of future microbiome projects using the macaques as animal model. This is particularly important as mouse models have limitations in the translation of findings to human biology and physiology. Despite some slightly outdated tool selections (like CARMA3) overall the technical part of the gene catalogue study is carefully and well executed.

From the other hand, the compositional analysis of the gut microbes appears to be problematic. The genera shown all have too low abundances that cumulatively count for only a very small proportion of the communities. I am afraid that this is an artifact of the taxonomic classification used. We know that a significant proportion of the gut microbes especially for human has cultivable representatives (around 80% of the total community for human, 50% for pig and from 20-80% in mouse). Therefore, I would advise to test other pipelines also, like MetaPhlAn v2 for example, to compare the results. Otherwise, claims based only on such small fraction of the microbiome cannot be expressed as descriptive of the whole communities.

Finally, as a minor note, I would also prefer Alpha diversity to be expressed as Shannon effective (linear scale) rather as Shannon index (logarithmic scale) as more intuitive and more suitable for the statistics.

Methods

Are the methods appropriate to the aims of the study, are they well described, and are necessary controls included? Yes

Conclusions

Are the conclusions adequately supported by the data shown? Yes

Reporting Standards

Does the manuscript adhere to the journal's guidelines on [minimum standards of reporting?](#) Yes

Choose an item.

Statistics

Are you able to assess all statistics in the manuscript, including the appropriateness of statistical tests used? Yes, and I have assessed the statistics in my report.

Quality of Written English

Please indicate the quality of language in the manuscript: Acceptable

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