

## Reviewer's report

**Title:** Associations between dietary habits and body mass index with gut microbiota composition and fecal water genotoxicity: an observational study in African American and Caucasian American volunteers

**Version:** 1 **Date:** 22 July 2009

**Reviewer:** Stuart Smith

### Reviewer's report:

Reviewer's report: The authors have provided a significant piece of work on differences in the gut microbiota in two american racial groups. However, there are some major changes required before the paper should be accepted for publication

Major compulsory revisions

Authors present method sections on DGGE and qPCR.

- a) There is no mention of DGGE profiling in the results nor in the discussion. Authors need to include data or remove the method if there is no need for data.
- b) There is mention of qPCR in the method section but authors do not present results i.e. data not shown. Authors should present the data in a comparative Table or Figure with the FISH analyses and correlated with faecal water analyses to strengthen the data showing no changes in have no results presented on either approach in the paper. This is an attention to detail that the authors should have checked prior to submission.

Minor essential Revisions

page 6: Study design

line 3 Target population: authors need to mention BMI for division of subjects into lean and obese.

line 8 : "within the past 4 weeks"

line 9 : rather than "We enrolled..." state "A total of 98 subjects, 52 AA and 46 CA were enrolled" Also is it 98 or 101 enrolled?

line 15 states a 4 day record. How valid is this compared with 7 day FFQ?

line 23 Analytical cohort states 101 subjects so is it 98 or 101?

page 7

line 2. Authors need to mention BMI measurements of the AA and CA groups and subgroups.

line 13 Denaturing Gradient Gel Electrophoresis: delete or put results in it adds to paper

line 24 Fluorescent not Flurescent.

page8

Authors need to justify why they used DAPI for total bacteria rather than Bact 338 Fish probe. There is quite a bit of difference in total bacteria number using either probe. Authors to comment.

line 18: clarify by stating "two bacterial groups"

line 20 qPCR: Authors should explain where the subset of lean and obese subjects come from. This is not made clear.

page 9

line 20: Human tumor cell line HT29.

Was this better than Caco-2 cells for toxicity assays? Authors should explain.

line 23 "thawed" not "thawn"

page 10

line 1: Why the difference in passage numbers for cytotoxicity versus challenge assay. Challenge data not clear on page 12

Line 21 "Multivariate regression analysis (SAS0 was used" rather than "We used multivariate..."

line 24 What are significance values set at  $p < 0.05$  or  $p < 0.1$ ? ASuthros should state this.

page 11

Dietary analysis

line 10: Authors should state significance value for results e.g. MeIQx is at  $p < 0.05$ .

Faecal water analysis

line 16 "FW was performed in a subset of 21AA and 22CA subjects...". How is the subset determined.i.e. BMI of lean versus obese? Authors need to state.

page 12

line 2 "between the two racial groups....". Is this the subsets then say so.

line 6: "two groups" should be "two racial groups"

line 7: "Furthermore detected a..." should be "Furthermore, the results showed a..."

line 11: "limited number of subjects". How many? Authors should state number.

line 20 Authors need to include "Shannon-Wienmer diversity index" in page 10 Stats section of Methods.

page 13

line 5. What is Bacteroidetes level compared with Clostridia?. What is ratio of Bacteroidetes: Firmicutes? Does this differ to references 49 and 50? Would this data have been better with a Bact 338 probe for total bacteria.

line 17 real time PCr (data not shown). this data should be shown as it

strengthens authors argument that microbiota profile in lean and obese subjects does not conform to Ley et al (50) analysis of smaller human population. This is very important data. and should be included in a Table or Figure (e.g. figure 4) comparing FISH analyses with qPCR to show similarity in data.

Discussion

Page 15: No results for PCR-DGGE mentioned in results or discussion. Authors either put the data in or leave out the method.

Table 1 page 16. Authors should put data in on Subgroups of lean versus obese so this aligns with FISH analyses

Table 2 page 17 Authors should put in significance values at bottom of table.

page 23 Figure legends

Line 2 Figure 1, correct position of information

Figure 2 Was the Bact338 probe used as alternative to DAPI as this may change data.

Figure 3: correct label to figure 3.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

Declaration of competing interests: To the editor:

I declare that I have no competing interests.