Reviewer's report

Title: Differences in gut microbial metabolism are responsible for reduced hippurate synthesis in Crohn's disease.

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Reviewer: Harry Sokol

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The study by Williams et al. aimed to assess the baseline and peak urinary hippurate excretion in Crohn’s disease patients compared to healthy subjects. Hippuric acid is an interesting metabolite to study as its production is a result of the combined action of the gut microbiota and the host. Bacteria of the gut microbiota degrade dietary aromatic compounds in benzoate. Hippurate is the product of the conjugation of benzoate with glycine by the host. If benzoate from alimentation is excluded, urinary hippurate excretion can thus be seen as a marker of gut microbiota function (admitting that the host conjugation step is conserved). As the gut microbiota is known to have a major role in Crohn’s disease pathogenesis, analysis of urinary hippurate excretion is relevant.

The paper is well written, the measuring method used is accurate and the results are clearly presented. The authors showed that baseline urinary hippurate excretion is decreased in Crohn’s disease patients compared to healthy subjects (which is already known and published). This study demonstrate that patients with CD do not have an intrinsic (host) defect in conjugation of benzoate with glycine underlying the fact that the decrease in hippurate excretion in CD patients is due to alteration in the gut microbiota function.

Minor Essential Revisions

- The weakness of this paper is the lack of analysis of the gut microbiota composition in the studied patients. Correlation between dysbiosis and baseline urinary hippurate excretion would be interesting.
- Although only descriptive, this study is useful as it points out a functional consequence of the dysbiosis in CD. This point should be mentioned in the discussion

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