Reviewer’s report

Title: Rapid detection of PAH gene mutations in Chinese people

Version: 0 Date: 11 Dec 2018

Reviewer: Brigitte Glanzmann

Reviewer's report:

The authors describe a novel method for the accurate, reliable, fast and simple diagnosis of phenylketonuria (PKU). This autosomal recessive condition results in phenylalanine hydroxylase (PAH) deficiency which contributes to metabolic conditions. The authors describe a combination of single-tube PCR and molecular hybridization to identify PAH gene mutations. A total of 9 mutations were identified in Chinese individuals. The authors therefore conclude that this novel technique can be used in the Chinese population and suggest that it is suitable for the genetic diagnosis of other large populations affected by PKU.

General comments

The authors would benefit from taking the time to check the format of the manuscript. The numbering of paragraphs must be corrected as there is no consistency. All formatting marks should be removed from the images. In addition, it would be of value for the manuscript to be edited so as to amend the language structure of certain sentences and paragraphs. The manuscript requires significant improvement before it can be accepted for publication.

Major comments

The authors use samples for which a genetic diagnosis has already been obtained which is good for the proof of concept of a novel technique. They do not, however, apply the newly developed technique to a new band of patient samples or test the technique on the general population, thereby identifying novel mutations and consequently population specific variants. It is suggested that this be conducted as not all genetic variants will cause disease. In addition, it is suggested that more individuals are tested to ensure that variants identified may only be attributed to disease. Moreover, it would be beneficial to include the prevalence and incidence of PKU in the Chinese population in demonstrate the usefulness of this analytical technique.
Minor Comments

Page 3:
Line 6-7: Correct the formatting of the sentence.

Line 46: "have been detected in the country, mostly on exon 6th, 7th, 11th, and 12th exon."
* Please correct the sentence.

Line 57: What is the full term of "G6PD"?

Page 4:
Line 5: 1 MATERIALS AND METHODS
* Please correct this sentence.

Page 5:
Line 2: FIG. 1
* Please be consistent. Use "Figure" or "Fig.".

Line 12-27: Manufacturer's details. Please include these as completely as possible.

Paragraph 1.2.4 Molecular Hybridization Analysis
* It would be beneficial to the authors to describe in this section what is meant by "Liquid A, Liquid B" etc.

Page 6:
Amend the formatting of the paragraphs.

Line 26: 2 RESULT
* Please correct this to "Results"
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

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.

Not relevant to this manuscript

Quality of written English
Please indicate the quality of language in the manuscript:

Not suitable for publication unless extensively edited
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