Reviewer's report

Title: Multidrug-resistant Mycobacterium tuberculosis Genetic Diversity in Minas Gerais state, Brazil

Version: 2 Date: 4 May 2015

Reviewer: Omar Caceres

Reviewer's report:

The manuscript describes the use of different molecular methods to analyze the genetic variability of M. tuberculosis in a state of Brazil. But the authors need to improve the English for a better comprehension of the study. My comments are:

MAJOR COMPULSORY REVISIONS

ABSTRACT

-Line 51. The authors not explain the 22.2% of the remaining samples

-Lines 52-53 and 288-290: The paragraph is not clear, the 32 spoligotypes were found in 88 isolates (16 unique and 16 common)? Therefore 16 isolates are missing? Please clarify.

-Lines 54-56. The sum of the drug resistant profiles of the 104 samples is 100, four samples profile are missing. Please verify

-Lines 56-57: The authors report rpoB mutations found in their samples but these results are not described in the corresponding section (TB SPRINT, line 283). Please describe it in more detail. This paragraph raise the following question, only one RIF mutation was found in each sample? Usually more than one RIF mutation are found in this kind of samples. Similarly, this occurs with INH mutations too. Please describe in the corresponding section.

METHODS

Strains isolation and drug susceptibility testing

- To have a better idea of this study, is necessary that 104 samples analyzed had epidemiological data as age of the patients from where the samples were obtained, gender, clinical data, DST, etc. The authors refers that they collected demographic data but they don’t show these data. Please put these data in results section

- Line 156: How many clinical isolates were analyzed? This clinical isolates belong to the 104 samples analyzed or are other samples. Please clarify

- Line 169: Please put the concentration of the CTAB used

-Lines 188-190: The authors refers that they evaluated the samples using MIRU-VNTR 24 following a previous report but they put four bibliographic references. Which of the references They followed? Or the authors improved the
method, taking data of these references. If the latter is true, the authors need to describe this method.

- Lines 204-205: The paragraph is confuse, the authors need to improve the idea
- Line 205: Please verify the reference.
- Lines 223-224: The paragraph is confuse, the authors need to improve the idea

RESULTS AND DISCUSSION

- Lines 252-254: What happened with the 35% of the samples remaining? The authors need to explain the question
- Line 273: Please verify the reference 60 is related to the paragraph
- Line 279: Please verify the reference 50 is related to the paragraph
- Lines 294-295: the redaction of the paragraph is not clear. Please clarify.
- Line 295: The clinical isolates are not visualized in the MST graphic. Please improve the graphic.
- Line 304: The authors must explain what happened with the 2 isolates in the RIF-INH typing.
- Lines 307-308: From 98 samples 71 have RIF resistance mutations, the 27 samples remaining are susceptible or has other RIF mutations? Please clarify. Similarly, from 102 isolates evaluated for RIF resistance 98 had non-wild-type genotype, the 4 samples remaining had wild-type genotype? Please clarify too
- Line 313-314: According to the sentence, the reference 64 is not related. Please verify
- Lines 316-317: The paragraph is confuse, please describe in more detail.
- Line 323: What happened with the 2 samples remaining? Please clarify. Similarly, in line 325 Why only 94 of 104 isolates were evaluated by 3R-SNP typing?
- Lines 327-328: These 12 samples with unknown lineage were analyzed by other methods described in this study?
- Lines 336-337: The authors’ analyzed 4 molecular methods to determine genetic diversity of M. tuberculosis (see line 194) but in these lines the authors point out 5 methods, please clarify. Moreover, there is a mistake in the number of the table, must be table 3 instead of table 2.
- Lines 338-339: The redaction of the paragraph is not clear, please clarify.
- Lines 340-341: The authors must explain the discriminatory power of the other methods described in this study.
- Lines 346-347: How the authors demonstrate that the transmission is not recent in the study area? If the authors not show epidemiological data of the samples analyzed
- Lines 350-352: Similarly to the paragraph above, how the authors infer these results if they not show epidemiological data?
- Lines 368: Apparently there is a contradiction between the descriptions pointed
out in lines 346-347 and this sentence. Please clarify.
-Lines 368-369: Apparently there is a contradiction between this paragraph and
the samples with unknown lineage not resolved by 3R-SNP typing. Please clarify

REFERENCES

-Please verify the correct separation of lines between the following references: 1
  and 2; 36, 37 and 38; 40 and 41; 58, 59 and 60.

MINOR ESSENTIAL REVISIONS

-Line 77: Please delete “M. tuberculosis”
-Line 82: I suggest change “M. tuberculosis” word by MTb
-Line 112: Please correct the letter “e” by “be”
-Line 301: the reference 54 are repeated
-The reference 67 is missing
-Line 771: In table 1 the letter “a” is missing
-Line 796-797: Please correct the title of the table according to the correction
  pointed out in lines 336-337
-Line 838: please correct the word “perio”
-Line 846: Please complete the word “3R”
-The authors need to improve the quality and resolution of the MST graphic and
dendrogram (figure 1 and 2)
- Figure 1: The legend of Harleem lineage (H) is missing in the MST graphic

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

Quality of written English: Needs some language corrections before being
published

Statistical review: Yes, but I do not feel adequately qualified to assess the
statistics.

Declaration of competing interests:

I declare that I have no competing interests