Reviewer's report

Title: Genetic Integrity of the human Y chromosome exposed to groundwater arsenic

Version: 3 Date: 5 May 2010

Reviewer: Helen Skaletsky

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Minor Essential Revisions

1. Knowledge of Y haplotype is essential when you compare any groups of Y chromosomes. Therefore I suggest that authors include in the manuscript (in some form) their reply to my question about possible difference in haplotypes of subjects and controls.

2. The basic conclusion of the paper is that consequences of exposure to arsenic are different in vivo and in cell culture, though these consequences for the cell culture are not known. Again, I suggest to include authors' answer to my question about Y chromosome rearrangements in cell culture in the manuscript. More precisely, it should be mentioned that Y chromosome rearrangements in cell culture subjected to arsenic have not been studied so far, and authors' intent to do such study should be stated.

3. More details should be provided concerning results of DYZ1 FISH experiments. In some samples DYZ1 signal was absent in ~20% of cells. Was it present in all cells in other subjects? What was used as "positive control" and what exactly were the results for it? Is absence of signal in many cells correlated with the size of signal in majority of cells? Representative images do not answer these basic questions.

Level of interest: An article of limited interest

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