Review of: "The Rural-Urban Divide: Insights from Immuno-Genetic Profiles and Implications for Health"

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Potential competing interests: No potential competing interests to declare.

Rural-Urban Divide: Insights from Immuno-Genetic Profiles and Implications for Health

In the manuscript, the authors highlight some exciting results on demographic, genotype, and expression data from two rural populations in eastern Sudan compared to urban controls. My comments are described below.

ABSTRACT

In the abstract, the authors preferred to describe an alternative presentation. For a complex issue, the classical form of introduction, objective, methods, results, and conclusion will facilitate non-expert readers.

- Hardy-Weinberg Equilibrium (HWE). Please correct the entire manuscript.

INTRODUCTION

- at the end of the first paragraph.

Please add a reference.

- The expression of these genes, however, is not necessarily a direct reflection of such variation and could be subject to the complex interaction of the protein networks of the body and the environment.

Add a reference.

- (reference: article on sociobiology)

Please note that the reference is lacking.

- Idaghdour and his colleagues (year of publication)

- malaria and leishmaniasis

What type of leishmaniasis? Visceral and tegumentary leishmaniasis have different clinical manifestations and induce different immune responses and gene expression.

METHODS AND MATERIALS

- These populations have been the subject of longitudinal research surveys between the years 1994 and 2014.

This is a great limitation. Why are the authors not working with the updated samples? Probably, the way of life of these rural populations has changed radically, limiting the interpretation of the results nowadays.

- No urban controls were genotyped in the MalariaGEN project, but controls consisting of 60 supposedly immunologically naïve samples for infectious diseases were selected based on an extended urban lifestyle and habitation; of those, 20 samples had their RNA extracted and subsequently analyzed for gene expression as below.

The samples from the study group were obtained in 2007, and from the controls?

RESULTS

- Helminthic infections are also prevalent, but their incidence in these rural communities is not properly determined, except for a limited survey of schoolchildren (157 in Um Salala and 44 in Koka), where in Koka only 7 cases (5 cases of Taenia, 1 case of H. nana, and one of Enterobiasis) were found, while in Salala there were 39 cases (1 case of Ascaris, 8 cases of H. nana, 24 cases of Taenia, and 6 cases of Schistosoma mansoni).

If the samples are not appropriate, I suggest deleting them from the manuscript.

DISCUSSION

- Correct the references. [9] [10] [11] [12] [13]: [9-13]

- The discussion is like a review of literature, and the first paragraph is a repetition of the Introduction chapter.

- The authors must describe the meaning of the abbreviations such as IL-4, IL-5, TLR4, CD-40, FASL, CTLA4, and CCR5 for non-immunologist readers.

- Whether helminthic infections can explain some of the health features in these rural communities.

The authors affirmed that helminthic data were not representative, so it is difficult to infer some results from helminthic infection, such as increased IgE levels and TH2-triggered responses.

- A bona fide marker of asthma?

Please explain this biomarker of asthma and add a reference.