Reviewer's report

Title: Antiretroviral treatment-induced dyslipidemia in HIV-infected patients is influenced by the APOC3-related rs10892151 polymorphism

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Reviewer: Hassan Khan

Reviewer's report:

General Comment: The article is generally well written and appropriately integrated into existing literature on the topic. The authors report an interesting interaction between NNRTIs/PI and the snp rs10892151 in raising serum lipid levels.

Authors initially report that this polymorphism is reported to be associated with dyslipidemia (apo C 3 levels) in an Amish population based study which prompted them to investigate a possible interaction between rs10892151 and HIV pharmacotherapy. Yet they later failed to replicate the association of this snp with apo C3 levels. Hence they suggest that this variant may not be in LD with a loss of function mutation in apoC3 and the observation seen in Amish may be due to founder effect.

Other reasons due which they were unable to replicate this finding may include limited sample size, population structure or allelic heterogeneity all which needs to be investigated. The authors really need to be cautious about the generalizability of their results and these findings need to be replicated in other populations as stated in the discussion.

The fact that A allele carriers had significantly deranged lipid profiles need to be understood further biologically. What may be the reason of observing such an interaction between the A allele and treatment with Protease Inhibitors is not clear from this study. Moreover this interaction does not seem to be specific to one anti HIV class of drugs but in part extends to NNRTI for HDL levels. The section in discussion does not provide a suitable hypothesis for this observed effect.

In addition the limited sample size and the fact that authors genotyped only a single snp rather that the region of interest where the causal variant may reside are significant limitations in the design of this study.

Clearly the implications of the findings of this study if true, mean a lot for individualized pharmacotherapy in HIV patients and as such the present study falls short of substantiating these observations.

Minor Revisions: In table 2 the authors need to add in the number of participants in each treatment arm eg. PI treated (n=x), G/G (n1=x1 ) and A/G (n2=x2) , NNRTI treated (n=y), G/G (n1=y1 ) and A/G (n2=y2)

On page 11 line 20, section: discussion, correct the typo “CPR” to “CRP”
Conflict of Interest: The reviewer declares no conflict of interest.

**Level of interest:** An article of importance in its field

**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