Reviewer's report

Title: Liver X receptor beta polymorphisms in type 2 diabetes mellitus and obesity in three cohort studies: HUNT 2 (Norway), MONICA (France) and HELENA (Europe)

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Reviewer: Hans-Ulrich Häring

Reviewer's report:

Solaas et al. report on associations between genetic variation in the NR1H2 gene coding for liver X receptor # (LXR#) and risk of type 2 diabetes mellitus and obesity and three different cohorts. In light of the crucial roles of LXR# in glucose homeostasis and lipid metabolism, NR1H2 appears to be an attractive type 2 diabetes candidate gene and, therefore, this study is highly relevant.

The manuscript is well written. The study was thoroughly planned and performed. The results of the present study add important information on potential candidates contributing to the risk of type 2 diabetes mellitus. However, following points should be addressed before the manuscript is acceptable for publication:

Major comments:
1. The authors should perform Bonferroni correction for the number of tested single nucleotide polymorphisms (SNPs).
2. The authors should comment on the associations between common genetic variation in NR1H2 and measures of obesity in the HUNT 2 study. Furthermore, a meta-analysis including all subjects of the three cohorts should be performed to study the impact of NR1H2 SNPs on body mass. Are data on the diabetes prevalence available for the cohorts in the MONICA study and the HELENA study? If this is the case, a replication of the association between genetic variation in NR1H2 and diabetes risk found in the HUNT 2 study could be performed.

Minor comments:
1. Though published earlier, subject characteristics should be given as supplementary tables.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.