Reviewer's report

Title: B7-H4 gene polymorphism is associated with sporadic breast cancer in Chinese Han population

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Reviewer: Rulla May Tamimi

Reviewer's report:

This study examined the association between B7-H4 polymorphisms and breast cancer risk in a case control study among Han women in Northern China. I have major concerns about the analysis and presentation and interpretation of results.

1. Background. It is unclear why this gene has been chosen. The authors should rationale and evidence for a role of immune function and breast cancer.

2. The description of SNP selection should be described in the methods section, not the background. The authors should more completely describe how they selected the SNPs they genotyped. Did the authors select and genotype only these 3 SNPs?

3. Methods: were there any replicates included in the genotyping assays as a QC?

4. statistical analysis: this was a matched case-control study, how was the matching taken into account?

5. table 1—what is the difference between infiltrative ductal carcinoma and intraductal carcinoma? The authors should spell out the abbreviations in this table

6. table 2 can be a supplemental table

7. Table 3—It is unclear to me what the authors have done here. There is a p-value for every single genotype. Does this mean they did a chisquare test comparing having that genotype to not having it? This is very odd. There should be one global chi-square for the SNP with either 2df test or a 1 df test if assuming a codominant model. What are the odds ratios in this table? The first SNP has 2 ORs, the second has one OR, and the third SNP has 3. There needs to be a reference group...what are these in comparison to?? Same thing for tables 4 and 5.

8. Discussion: the authors use very strong language in referring to these results...that these haplotypes may “protect people from breast cancer”. The authors need to be more cautious, since replication is necessary. Did SNPs in these genes come out of any of the recent breast cancer GWAS studies. If not, it may be important to discuss why not. Are these SNPs observed at similar frequencies in other populations?

Level of interest: An article of limited interest
**Quality of written English:** Needs some language corrections before being published

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

**Declaration of competing interests:**

I declare that I have no competing interests