Reviewer's report

Title: Association of vitamin D receptor polymorphisms with the risk of prostate cancer in the Han population of Southern China

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Reviewer: Sonja Berndt

Reviewer's report:

This case-control study investigates the association between polymorphisms in the vitamin D receptor (VDR) gene and the risk of prostate cancer in a Han population in China. The authors have revised the manuscript, but some issues still remain:

Major Compulsory Revisions

1) Results p.10: The authors state that “Considering no association with the age distribution among different genotypes based on the Independent-sample test, we here hypothesized the Bsml ‘B’ allele might have a protective effect against tumorigenesis.” It is not clear why having no association with age would lead the investigators to hypothesize that the B allele is protective for prostate cancer.

2) Results p.10: Not all studies of Bsml have observed the same association with prostate cancer. The authors should mention studies that have not observed the same association to give a fair presentation of the literature.

3) Table 3: The odds ratios for the association with prostate cancer should be given in Table 3 as this is the primary objective of the study. The mean age for each genotype is not needed. A sentence in the manuscript stating no association with age is sufficient.

4) Table 3: The nomenclature used in this table is inconsistent with the nomenclature in the manuscript (e.g., the alleles for Bsml are given as A and G, instead of B and b). Also, the labels for Bsml appear to be incorrect assuming A is rare in this population.

5) Table 6: The labels for the haplotypes do not appear to be correct as ‘B’ appears to be common based on the frequencies of the haplotypes, but it should be infrequent.

6) Stratified results presented in Table 4. The number of cases with the variant allele for most of these strata are too small to draw meaningful conclusions. The manuscript should be revised accordingly. At most, the authors should only have one sentence regarding these results and should acknowledge that the numbers are too small to draw meaningful conclusions.

Minor Essential Revisions

7) Table 1: Please indicate what the reference group is for the odds ratios given in the table.
8) Table 6 and abstract. It is not clear what the reference group is for the haplotypes. Please indicate in the abstract that the comparison group for the association observed for the haplotypes. Please place a footnote in the table indicating what the comparison is.

**Level of interest:** An article whose findings are important to those with closely related research interests

**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