Reviewer's report

Title: Serum levels of selenium and smoking habits at age 50 influence long term prostate cancer risk; a 34 year ULSAM follow-up

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Reviewer: Gary Schwartz

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This is an interesting exploratory study in an area of importance to prostate cancer prevention. There are a few areas that require attention.

First, the recent paper by Pennney KL, et al., in Cancer Prevention Res April 2010, which found an interaction of plasma selenium levels and the SEP 15 gene, with prostate cancer risk, and survival should be included and discussed.

The Abstract requires some clarification. The sentence, "Smokers with se-Se....had a pronounced risk for developing PrCa" should specify this risk.

The Introduction notes that variable that may influence serum selenium, including cholesterol and sedimentation rate, were measured. How these variables influence serum selenium is not explained. The biology should be explained to the reader in a few words.

In the Results section, the authors finding should be discussed in light of recent findings by Penney KL, et al, "A large prospective study of SEP15 genetic variation, interaction with plasma selenium levels, and prostate cancer risk and survival, in the April Cancer Prev Res.

Greater discussion on the discrepant results of this study and the SELECT trial should also be added to the Discussion.

The topics of serum selenium and smoking, both individually and joint, continue to be an unresolved issue in prostate cancer. The effects of these variables also are likely to differ in genetically defined subgroups, as has recently been reported in several cohorts, including the Physician's Health Study. The analyses reported in this ms. confirm that the issue of DNA repair and its possible interaction with polymorphisms in DNA repair genes is one that merits additional study.

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 in reviewing this ms.