Reviewer's report

Title: Selenium enrichment of broccoli sprout extract increases chemosensitivity and apoptosis of LNCaP prostate cancer cells

Version: 1 Date: 8 June 2009

Reviewer: Jed Fahey

Reviewer's report:

Minor Essential Revisions

This is a nice paper, albeit: (a) limited to a cell culture system, (b) not particularly novel, (c) neither well supported with statistics nor overwhelming in its results and conclusions. The data appear, however, to be solid, and provided the authors can provide more convincing statistical justification that their conclusions based upon data shown in the figures are robust (see below), it is worthy of publication in BMC Cancer.

The presentation of drug sensitivity assay results on page 12 (1st paragraph of section) was very confusing and should be re-written.

P 17 – you make that statement that “Reducing PSA secretion may represent a promising approach to prostate cancer prevention.” What justification is there for this statement? PSA is a biomarker and a diagnostic. What evidence is there that reducing the secretion of this marker is an approach for prevention? (It may be an indicator that you have successfully intervened -- although cell culture studies are only suggestive, at best).

P 18-19 – You say that Finley and co-workers “first introduced” that “rats were protected from chemically induced mammary tumor development” by Se-enrichment of broccoli sprouts. This implies something inaccurate. Fahey and co-workers, in 1997 (Proc Nat Acad Sci), had already reported that broccoli sprouts [without Se enrichment] protected rats from chemically induced mammary tumor development. This paper should be referenced.

p. 19 (top) – I believe that the closing sentences in the Results section are not supported by your experimental evidence.

Table 2 (supplemental) – Is there a significant difference between the level of sulforaphane in the control sprouts (375.87 uM) and that in the selenium enriched sprouts (316.53 uM)?

Many relevant references have been ignored in the discussion of mechanism. To suggest just a few:

Bhamre et al. (2009) Prostate
Traka et al. (2008) PLoS ONE
There is no discussion of the statistical significance of any of your data. While not necessary in many cases (e.g. Figs 1 & 2), isn’t there need to have at least a passing mention made of the significance of differences in fig 3B and 4? No mention of statistical treatment of data is made in the Methods section and apart from error bars on some of your plots, no other signs that there was a method for determining that observed differences are real differences.

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

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests.