Reviewer's report

Title: Serum estradiol levels associated with specific gene expression patterns in normal breast tissue and in breast carcinomas

Version: 1 Date: 9 May 2011

Reviewer: Anita -- Dunbier

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The manuscript by Haakensen et al. explores the relationship between serum estradiol and gene expression in breast tissue and tumour samples. Although the study has limited power due to the technically demanding nature of extracting sufficient RNA from small amounts of normal tissue, it makes a number of potentially interesting observations including the identification of six genes expressed in normal tissue that appear to be associated with serum oestradiol.

- Major Compulsory Revisions

1. The oestradiol assay used is limited in accuracy in postmenopausal women. Although this is alluded to in the final stages of the discussion, the precise accuracy needs to be stated in the methods section. This is important so that readers can be aware the reliability of the data from post menopausal women.

2. The manuscript needs to describe the patient cohort more fully. This should include a breakdown of the number of pre- and post-menopausal women included in the study.

3. The methods section also needs to include the RNA integrity cutoff used for inclusion in the microarray analysis.

4. Gene ontology analysis needs to be included as a supplementary table.

- Minor Essential Revisions

Pg 6. Under section “Mammographic Density”, line 5. “…all dense areas of density” is superfluous. Should be either “all areas of density” or “all dense areas”.

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.