Reviewer's report

Title: Defining the genomic signature of the parous breast

Version: 1 Date: 1 May 2012

Reviewer: Thomas Sutter

Reviewer's report:

This manuscript follows and expands upon a recently published manuscript reporting the identification of differentially expressed genes in breast tissue from parous and nulliparous women, using a discovery/validation approach. In the current manuscript, the discovery and validation samples are combined, in order to increase statistical power, and the combined data set is used to investigate the gene pathways that are affected by full term pregnancy. Because it is well accepted that a women's lifetime risk of developing breast cancer after menopause is reduced by early full term pregnancy and multiparity, the observation of a genomic signature of this event, and the specifics of the biology observed in this data are fascinating. The manuscript is clearly written and provides a compelling basis for the effect of parity on breast differentiation.

Only minor essential revisions are noted:

Abstract, Results section... “Of these 267 ....a comma should be added after these.

Results, section entitled Volunteer included in the analysis... be sure that CNBs has been previously defined.

Figure 1, N and Y cannot be observed in the figure.

Table 1 should include the p-values for the GO results; with the categories ranked by p-value.

Level of interest: An article of outstanding merit and interest in its field

Quality of written English: Acceptable

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

Declaration of competing interests:

I have received an honorarium of $200 from Fox Chase Cancer Center for a seminar I gave at the institution.