Reviewer's report

Title: Human breast cancer associated fibroblasts exhibit subtype specific gene expression profiles

Version: 2 Date: 3 April 2012

Reviewer: Ken Hess

Reviewer's report:

Major Compulsory Revisions
1. Page 4, paragraph 2, line 3: Explicitly indicate how many training samples were used and how many validation samples were used.
2. Page 4, paragraph 2, line 4: p-values from training set need to be adjusted for multiple testing such as the Benjamini-Hochberg corrected p-values reported in Table 3.
3. Page 4, paragraph 2, line 8: The variation accounted for by the first principal component (49%) is the overall variation, not the variation between subtypes. Likewise for the variation accounted for by the second PC. In fact, sample type is not used in the PC analysis at all. As such, it is an unsupervised method.
4. Page 5, paragraph 1, line 4: A false discovery rate of 28% is unacceptably high. The p-value threshold needs to be adjusted to bring the FDR down to a more respectable 5 to 10%.
5. Page 8, paragraph 3: A statistical sample size justification needs to be provided to ensure readers that a sufficient number of samples were included to yield robust results.
6. Figure 2B: The failure of the ER+ and TNBC validation samples to properly segregate apart indicates a failure to validate the results from the training set. The only part that was validated was the ability to separate out the HER2+ samples.
7. Table 1: Due to the small numbers of samples, these comparisons have low statistical power and thus a high false negative rate. Thus it is impossible to interpret the lack of significance.

Minor Essential Revisions
1. Figure 5: What measure of uncertainty is represented by the whiskers on the bar graphs?
2. Page 4, paragraph 3, line 6: “TNBC+” should just be “TNBC”.
3. Table 2: Omit the Full name column since it adds nothing to the table.

Level of interest: An article whose findings are important to those with closely related research interests
Quality of written English: Acceptable

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

Declaration of competing interests:
'I declare that I have no competing interests'