Reviewer's report

Title: The functional cancer map: A systems-level synopsis of genetic deregulation in cancer

Version: 1 Date: 22 February 2011

Reviewer: Lyle Burgoon

Reviewer's report:

Overall a very interesting and potentially useful study. At this moment, it is difficult to assess the quality of the manuscript. Through revision, it should become easier to assess the quality.

Major Compulsory Revisions:

1) The methods appear relatively sparse. It's difficult to assess the quality of the manuscript without further details on the following:
   a) What form/type of data were used -- did you use normalized data, raw data, analyzed data?
   b) How were the microarray data normalized? Was the same normalization method used across all of the data? Did you perform additional normalization of the data?

2) I'm concerned that there appears to be a lack of multiple test correction, or that the use of a FDR control method is lacking, in both the microarray analysis and the fisher exact test. It would be best to at least perform some type of FDR control.

3) I'm concerned about the exclusion of genes without a technical reason. The authors appear to state that genes are statistical outliers, and therefore, worthy of exclusion based on their existence beyond the 3IQR. This is rather capricious and without any technical merit. If we assume the data follow a normal distribution (which it appears the authors may be doing given their 3IQR limit), then we must also realize that the distribution extends from negative infinity to positive infinity. Thus, there is always a likelihood that genes will fall outside of this 3IQR limit, not due to chance, but due to reality -- based on the shape of the distribution. In general, one should not remove data as a "statistical outlier" without some basis or grounding in a technical reason. Thus, I would like the authors to either 1) include a justification, or 2) find some other way to defend their removal of these outliers.

Level of interest: An article of importance 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 declare that I have no competing interests.