Reviewer's report

Title: Microarray characterization of gene expression changes in blood during acute ethanol exposure

Version: 2 Date: 12 March 2013

Reviewer: Xin Feng

Reviewer's report:

In general, I feel the manuscript needs more work on results validation and functional data analysis.

Major Compulsory Revisions

On the results validation:
the data does not come with replicates; Given the variability of microarray data, I am missing the correlation analysis; And how are those genes selected for the PCR analysis? Are they randomly selected just according to the differential expression magnitude?

On the functional data analysis:
In many previous reports of similar research projects, people have identified genes with increased/decreased expressions, however, at a constant level. I am not sure IPA or DAVID was able to find anything like this. It seems the data only indicate genes with ever-increasing/decreasing expressions.

The research used human subjects to identify ethanol related genes. It would be thus interesting to see if these 200 genes are conserved across species since similar number of murine genes were also reported previously.

The transcription factor motifs were identified based on individual clusters. But why not submit a run to MEME using the upstream sequences of all genes?

Minor Essential Revisions

Page 6: "Nine aged-matched " should instead be "Nine age-matched"
Page 8: "CEL files from OJ control samples", should I assume OJ == Orange Juice?

Discretionary Revisions

The descriptions of all the clusters identified are highly repetitive. Better just summarize them into a table and provide a shorter summary of the table(genes, hubs, network, etc).

If permitted, I would like to read more background info about previous work on identifying ethanol related genes, not on FAA.
Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

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