Reviewer's report

Title: An integrated analysis of genes and pathways participating in adaptive survival in estrogen receptor positive breast cancer cells

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Reviewer: Martin Abba

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Manuscript: "An integrated analysis of genes and pathways participating in adaptive survival in estrogen receptor positive breast cancer cells" by Mandal S and Davie JR.

General

In this manuscript, the authors identified differentially expressed transcripts in estrogen receptor positive breast cancer cell lines (MCF-7 and ZR75-1) under E2 deprived conditions. These findings are based on in silico analyses of public available SAGE databases from Cancer Genome Anatomy Project (CGAP). The design and execution were mostly straightforward and in general the paper is well written.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

The data are sound and well controlled. However, this work is essentially descriptive. There is not mechanistic, functional or gene expression validation of any of the differentially expressed gene/ pathways discovered in this study. This work would be much stronger if the authors had verified key gene changes by alternative techniques such as western or quantitative RT-PCR.

The authors state that “ZR75-1 cells mimic the aggressive ER(-) breast tumors by mechanisms such as minimization of energy requirements, streamlining and selectively utilizing genes for energy pathways…” (first paragraph of Conclusions section). A vast array of resources to harness the microarray data is available from different databases (Oncomine, ITTACA, GEO at NCBI, SAGEgenie databases). In this sense, the authors could compared the ZR75 SAGE profile under E2 deprived conditions with the gene expression profile of ER(-) breast carcinomas to cross-validate and corroborate this finding.

The discussion is often too much a repetition of the results and it's not focused.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

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