Reviewer’s report

Title: Regulation of human chorionic gonadotropin beta subunit expression in ovarian cancer

Version: 0 Date: 21 Feb 2019

Reviewer: Anindita Chakrabarty

Reviewer's report:

The authors aimed to find the regulation of CGB expression in ovarian cancer samples. They looked at the expression levels of CGB1/2 (group 1) and CGB3/9, CGB5, CGB6/7, CGB8 (group 2), their extent of methylation at the respective promoters and expression levels of transcription factors that can bind to these promoter regions (Sp1, Sp3 and AP2). Along with the differences in expression levels between normal and cancer cells, they detected CGB promoter hypomethylation along with higher expression of AP2 that binds there. Overall, this study confirms that CGB (particularly CGB1 and 2 for a subset of ovarian cancers) expression differs between normal and cancer cells. Moreover, CGB expression in ovarian cancer is regulated at the epigenetic level. Expression level of the TF capable of binding to the hypomethylated promoter CGB region matches with that of the mRNA. This study provides some new information pertaining to the expression of CGB in ovarian cancers. The reviewer would like the authors to address following points:

1. Figure 3 is mislabelled as Figure 2. Please correct.

2. "Expression levels of CGB did not correlate with stage and grade of cancer"-please show the level of expression according to the stage and grade.

3. Is CGB used for diagnosis of ovarian cancer? Is its expression level high enough to detect in urine?

4. Has there been any study done pertaining to the changes in CGB levels in ovarian cancer cell lines based on promoter methylation? Has anyone used DNA methylation inhibitor and demonstrated whether the pattern of CBG expression level is reversed in ovarian cancer cell line?

5. Has there been any indication that CGB and/or AP2 expression level correlate with a particular subgroup of ovarian cancer in TCGA database?

Are the methods appropriate and well described?

If not, please specify what is required in your comments to the authors.

Yes
Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

No

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

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