Reviewer’s report

Title: Spermine oxidase (SMO) activity in breast tumor tissues and biochemical analysis of the anticancer spermine analogues BENSpm and CPENSpm

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Reviewer: Michele Linsalata

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This paper by Cervelli M et al examines the expression of spermine oxidase (SMO) in breast cancer (BC) and investigates the possibility that two spm analogues, BENSpm and CPENSpm, may act as inhibitors of SMO activity.

The scientific contribution of the paper is pretty much relevant, but a number of items stated below need to be clarified and considered further:

Minor essential revisions

The “Introduction” section needs to be structured better in order to be consistent with the title and the abstract. Some sentences should be added about the role of SMO in the polyamine metabolism and homeostasis and its potential prognostic significance. Besides, the relevance of studying SMO in BC should be underlined. The aims of the study should be clearly stated and listed.

The number of patients in this study should be increased, especially to point out the prognostic significance of SMO in breast cancer. The small number of patients weakens evidences deriving from statistical analysis. The authors only found a “tendency” to a correlation between high SSAT enzyme activity and a number of variables such as tumor grade III, tumor marker Ki67 and age higher than 71 years. Moreover, no correlation between SMO activity and all the variables considered was found. Probably, a higher number of patients could be determinant to improve these correlations.

Why the C-erb and the TNM status were not considered in the multivariate analysis? Did authors study correlations between the enzymatic mRNA and clinical and histopathological features of the patients?

Besides, the referee wonders what criteria were used for including patients in the study or did they enter the study by random? Were all primary breast carcinoma?

The authors study the main enzymes involved in polyamine biosynthesis and catabolism, therefore it could be interesting to detect the single and total polyamine content in both tumor and nontumor samples. Furthermore in
“Materials and Methods” section it is reported “Analysis of enzymatic activities and polyamine content”.

As regards the enzymatic activities studied a short description of the methods utilized should be added and the intra and inter assay coefficients should be reported.

A description of distribution of patients according to their clinical and histopathological features could be added in the “Results” section.

The paper needs to be better structured in the “Discussion” section. Recent papers have studied SMO expression in colon and prostate tissues (see Hong SK et al Inflamm Bowel Dis 2010; Goodwin AC et al. Prostate 2008). The authors should discuss their results also in the light of these recent works and cite the papers in the references.

In the “Conclusions” section, the statements “…Data in this article highlight the clinical importance of SMO expression in breast tumors. SMO enzyme……could act as a prognostic factor” are too strong given that authors studied only a limited number of cases and no correlation were observed between SMO and the BC markers used, thus making these findings not so conclusive for possible clinical implications.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests