Reviewer's report

Title: Morphometric analysis of the relationships between basal cell carcinoma and its peritumoral stroma.

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Reviewer: Olivier Piot

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The manuscript written by Lesak et Naugler aims at correlating, for skin BCC, morphometric characteristics of tumor nests and associated stroma to cancer subtypes, i.e. infiltrative, nodular and superficial subtypes. The morphometric parameters are the tumour radius, the stroma width, the tumour to stroma ratio and the circularity of the tumour nests. These morphometric characteristics reflect molecular/biochemical alterations induced by the cancer development at the level of the tumour and its neighbouring stroma. The relevancy of the results relies on statistical processing of the morphometric data.

This study is of interest for BMC Dermatology. The approach could be further developed (or validated) for diagnostic purposes of BCC subtypes. Nevertheless, before publication, some precision and additional information have to be brought. These points have to be considered as major compulsory revisions.

1/ the results seems depend highly of the selection of the ROI. This selection is performed manually according some arbitrary rules (ex. stroma divided by 2 when it is between 2 separate tumour nests). Can the authors comment this point? In addition, it would be worthy to present histological sections of the different BCC subtypes and to illustrate the ROIs selection. For pathologists, the morphological characteristics of BCC subtypes are certainly well known, but for non-experts it is far to be obvious.

2/ the use of the different statistical methods should be more clearly presented. The statistical relevancy of results presented in Table 2 relies on a KW test (with p-values as presented) or rather on a chi-squared test?. In Table 2, why the comparison between the subtypes is carried out between the set of the 3 classes, and not between 2 classes as in Table 1?

3/ the results on immune reaction and elastosis (Table 2) are not compared, nor even discussed, with the results on the morphometric characteristics (Table 1). These results appear as separate studies without any link. Can the authors comment this point? The authors should study the link/correlation between the morphometric results and the presence of immune reaction or elastosis.

Level of interest: An article of importance in its field
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