Reviewer’s report

Title: The use of Matrigel has no influence on tumor development or PET imaging in FaDu human head and neck cancer xenografts

Version: 0 Date: 29 Sep 2015

Reviewer: Lori Dwyer-Nield

Reviewer's report:

The authors compare tumor growth, proliferation, and angiogenesis in a xenograft model. The FaDu cells that they used had a high take rate so the comparisons of +MG and -MG parameters were not affected by initial take rates. They showed very few differences between +MG and MG measurements. Strengths include the quality of the data and data analysis.

Major weakness: Only one cell line was assessed, so the general applicability of these results cannot be assessed. The authors themselves state this. Analysis of a second, unrelated cell line would suggest whether or not their results are cell type dependent. The title, "The use of Matrigel has no influence on tumor development or PET imaging in human head and neck cancer xenografts" suggests that the results presented indicate the absence of an effect for all head and neck xenografts, not just the FaDu cells.

Minor issues:

1. This paper need to be edited extensively for English grammar and usage.

2. Figures were not discussed in the Results section adequately. Some were not even mentioned or only 1 panel was discussed. When results are discussed in the Results and Conclusion section the figure number and panel letter should be indicated.

3. Did the +MG and -MG tumors in sub study II reach the sizes indicated at similar times? The results section indicates that the +MG group grew faster since these mice were sacrificed before Day 22. Did the -MG mice survive to Day 22? How many mice/group were sacrificed per time point in sub study II since there were only 10 mice/group to start with. Is each tumor or mouse considered a separate point?
4. Figure 5. The graphs should be consistent. The bars for each size group should have the same pattern throughout the figure. Labels on axes were too small to read easily.

5. Figure 6. The white balance (background) is different between the 4 IHC panels making it very difficult to see staining, especially in panels A and B.

6. Does tumor density inversely correlate with tumor size? Does cell density correlate with tumor volume better in -MG than +MG? How does proliferative index compare with cell density? Further statistical comparisons between these parameters could support the authors' speculations about the reasons for apparent discrepancies between tumor proliferation and cell density.

Conclusions. The questions raised in the manuscript about variability and apparent conflicts could have been addressed by having more 'n' in the sub-study 2 group. Further analyses of correlations between parameters also might answer some of these questions. More cell lines would also determine the applicability of these results to other xenograft studies. The authors suggest that there is more variability in the +MG data. Can this be difference in variability be evaluated statistically?
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.

Unable to assess

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:

Not suitable for publication unless extensively edited

Declaration of competing interests  
Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?
If you can answer no to all of the above, write 'I declare that I have no competing interests' below.
If your reply is yes to any, please give details below.

I declare that I have no competing interests.

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license (http://creativecommons.org/licenses/by/4.0/). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal