Reviewer’s report

Title: The nontoxic natural compound Curcumin exerts anti-proliferative, anti-migratory, and anti-invasive properties against malignant gliomas

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Reviewer: Nicole Beauchemin

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The manuscript submitted by Senft et al. describes novel work with the natural non-toxic compound Curcumin on a number of glioblastoma cells lines. The authors have first investigated various doses of the compound on the proliferative capacity of the cell lines as well as the inhibitory effect that it has on migration and invasion. The manuscript is written very clearly and the figures are of high quality, which makes the manuscript and the data very compelling. Given that there are few options for the treatment of gliomas and that curcumin is a readily available product, the justification for using this compound in the future is particularly interesting.

However, I have a few suggestions and questions regarding some of the experimental data:

1) The data of Fig. 1A for the proliferation assays is very tight. However, the corresponding Ki-67 (Fig. 1D) and c-Myc (Fig. 1C) mRNA expression levels do not necessarily match these assays particularly with the recurrent cell lines MZ-256 and MZ-304. Is this dependent on the combination of oligos used for these genes in the real time PCR or is it more inherent to the recurrent nature of the original tumors? I would suggest that the real time PCR be repeated with new oligos or more samples to decrease the SD.

2) The authors describe how they have investigated the decrease of p-STAT3 after a 2 hr treatment with curcumin. Is the decrease stable for more than 2 hrs. This data would represent very significant information for future therapeutic uses of this compound.

3) It would also be important to verify whether in this context after treatment with this compound apoptosis is significantly increased.

Minor corrections:

1) Fig. 2B and C should have the ordinate labelled “% inhibition”.

I believe this manuscript can be improved with the above-mentioned suggestions.

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:
No competing interests.