Reviewer's report

Title: Methylseleninic acid restricts tumor growth in nude mice model of metastatic breast cancer probably via inhibiting angiopoietin-2

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Reviewer: Changqing Su

Reviewer's report:

In this manuscript, the authors investigated the expression levels of Ang-2 and VEGF on mammary cancer cell line MDA-MB-231 and its xenograft tumors of nude mice after treated with MSeA. They found that treatment with MSeA caused a significant reduction of Ang-2 mRNA transcripts and secretion of Ang-2 proteins, as well as VEGF, in cancer cells. They concluded that MSeA exerts anti-tumor effects partly by inhibiting the Ang-2/Tie2 pathway via inhibiting VEGF. Overall, data in the paper are clearly presented and the paper is well-written, however, the following issues need to be addressed.

Major Comment:

1. VEGF expression was examined by Western blot in cells, and by immunohistochemistry in xenografts. But these two methods are not quantitative, and the conclusion of VEGF expression change needs the quantitative data.

2. The authors investigated the expression levels of Ang-2 and VEGF on mammary cancer cell line MDA-MB-231 and its xenograft tumors, and found both of them decreased at expression levels, so they concluded MSeA inhibits Ang-2/Tie2 pathway via inhibiting VEGF. The conclusion is not enough demonstrated. The relationship between their superior and subordinate places need to be further investigated, maybe the change of VEGF is only a concomitant phenomenon.

Therefore, the manuscript needs major revisions.

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published

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.