Reviewer’s report

Title: alpha-Mangostin extracted from the pericarp of the mangosteen (Garcinia mangostana Linn) reduces tumor growth and lymph node metastasis in an immunocompetent xenograft model of metastatic mammary cancer carrying a p53 mutation

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Reviewer: Manabu Kawada

Reviewer’s report:

The authors have previously reported that the antitumor and antimetastatic activity of panaxanthone, which includes alpha-mangostin as 90% of the ingredients. In this study the authors have now investigated the effect of alpha-mangostin itself using the same model. They found that alpha-mangostin suppressed the growth and metastasis of mouse mammary cancer cells. However, this paper has a few unclear points regarding the description. Following points should be considered.

1. The authors administered 10 and 20 mg/kg/day of alpha-mangostin using osmotic pumps. How did they determine the treated doses and the administration route? Acute toxicity of alpha-mangostin or any other information about its toxicity should be described. Furthermore, the advantage for the use of osmotic pumps instead of direct administration such as iv or po should be discussed.

2. Fig. 5 clearly showed that alpha-mangostin decreased CD31 positivity indicating the inhibition of angiogenesis. However, there isn’t any explanation of the mechanism of angiogenesis inhibition. Is it possible that alpha-mangostin directly affects endothelial cells? Furthermore, how about the lymphatic vessel counts?

3. Only in Fig. 7, the authors used human breast MDA cell line instead of mouse mammary cancer cells. Is it a mistake of description? If not, to generalize the findings, the authors should also done other experiments using human breast MDA cell line.

Minor points:

1. Line 9 in the abstract “Tumor volume increases and the multiplicity…” doesn’t seem to be correct. “increases” should be rather omitted.

2. The number labels in x-axis of Fig. 3A should be correctly aligned.

3. The photo of Fig. 7B is not clear. Replacement should be encouraged.

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.