Reviewer's report

Title:A novel naproxen derivative capable of displaying anti-cancer and anti-metastatic properties against human breast cancer cells

Version:3 Date:25 April 2014

Reviewer:Daotai Nie

Reviewer's report:

Major Compulsory Revisions:
1. The title and conclusions are not fully supported by the data presented. In vivo data are needed to claim anti-metastatic properties.
2. PGE2 inhibition by the compound 4 was presented at a single concentration (6 mM). They need to test multiple concentrations to determine IC50 in inhibiting PGE2 synthesis.
3. Wound healing assay to monitor tumor cell migration has limitations especially after overnight treatment. The reduced wound healing may be due to inhibition of cell proliferation and/or induction of apoptosis. Other assays such as Boyden chamber assay (transwell assay) can be used to assess cell migration by the treatment especially at shorter durations.

Minor essential revisions:
4. The concentrations for the compound 4 to induce apoptosis, inhibit wound closure, and inhibit PGE2 synthesis varies. Are the observed effects related to the inhibition of COX-2?
5. Statistical analysis needs to be done in some figures such as Figure 4.

Discretionary revisions:
6. Does compound 4 have off-target effects? Does it induce apoptosis in breast cancer cells with COX-2 expression knocked down? The off-target effects can be addressed in the discussion of the limitations of the compound.

Level of interest:An article whose findings are important to those with closely related research interests

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

Statistical review:Yes, and I have assessed the statistics in my report.

Declaration of competing interests:
I declare that I have no competing interests