Reviewer's report

Title: The thrombin cleavage domain of osteopontin mediates breast cancer cell adhesion, proteolytic activity, tumorgenicity, and metastasis

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Reviewer: Lalita Samant

Reviewer's report:

This is an unprecedented study to assess the functional role of the thrombin cleavage site of OPN in mediating effects on malignant properties of cells. A few minor alterations will greatly help answer some questions:

1. In Figure 1A, the authors refer to the smaller band in the 468-OPN lane as that of N-terminal cleaved OPN. How do we know this? Is the antibody specific for recognition of the cleaved form?

2. In the same Figure, the OPN band in the deltaTC lane is identified as a 'faster running' band. There are two distinct bands in that lane. Could the authors comment on whether the band with the greater mass is due to post translational modifications of the delta TC band?

3. In the same Figure, it does appear that the band intensity for Thrombin is distinctly less than that seen in the CON and deltaTC lanes. Can the authors speculate on why this is the case? If there any mechanistic insight they can add to the discussion for this observation?

4. It will be helpful to show the entire dataset for Figure 1B. It could also be added as Supplemental Data...but the authors must consider giving the data for all the groups tested.

5. Figure 3B: Can the authors provide some insight, based on published literature, as to why they see an increase in uPA activity in the delta TC relative to OPN and CON cells? Also, based on literature, one would expect that the OPN cells will show an increase in uPA relative to vector-only cells. This is in fact not observed in these cells. Please comment.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

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

Declaration of competing interests:

I declare that I have no competing interests