Reviewer's report

Title: The functional and structural characterization of a novel oncogene GIG47 involved in the breast tumorigenesis

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Reviewer: Ali Naderi

Reviewer's report:

This study investigates GIG47 as a potential gene involved in breast tumorigenicity. The findings are interesting and novel however, manuscript would need major revisions before it can be published. The following revisions are required:

Major points:

1) Authors should provide mechanisms for the observed effects of GIG47 on cell invasion and tumorigenicity. Since previous published data have pointed to MAPK and PI3K pathways being involved in the function of this gene, they would need to test the activity of these pathways in their cell line and in vivo models. Specifically, using stable GIG47 overexpression and mice xenograft models the activation of relevant pathways such as MAPK and PI3K pathways should be assessed.

2) Considering that authors claim GIG47 has a role in tumorigenicity and may be a potential treatment target, they should test the effect of GIG47 knock-down using siRNA on cell proliferation, and invasion.

Minor points:

1) Figure 1 B: Y axis needs a description.

2) References regarding GIG47 functional activity with respect to the PI3K and MAPK pathways should be provided in the manuscript.

3) In the discussion section on page 21 authors refer to reference 8, which is from 1998, as a recent study! This is clearly not a recent study and the statement should be corrected.

4) Data from Figure 1B clearly show that GIG47 is highly expressed in ER-negative cell lines MDA-MB-231 and SK-BR-3 (even more than that of ER-positive cell line MCF-7). This is not compatible with the statements in the discussion section that GIG47 is mostly overexpressed in ER-positive breast cancer. Therefore, authors should reconcile their findings with those of published data and re-draft the discussion section accordingly.

Level of interest: An article whose findings are important to those with closely related research interests
**Quality of written English:** Acceptable

**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.