Reviewer's report

Title: Cytosolic galectin-7 impairs p53 functions and induces chemoresistance in breast cancer cells

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Reviewer: runqing lu

Reviewer's report:

In this manuscript, Grosset et al analyzed the cellular localization of galectin-7 and its mutant in breast cancer cells. They further examined the responses of cells to doxorubicin in presence of either wild type or mutant galectin-7 and concluded that p53 function is impaired in presence of cytosolic galectin-7. Overall, the authors have done a thorough job characterizing galectin-7 and its mutant, however, the presumed link between galectin-7 and p53 is not well supported by the evidence provided in the manuscript.

Major points:

1) The authors claim that cytosolic galectin-7 inhibits nuclear translocation of p53 and promotes p53 degradation. However, they did not provide sufficient data to support those claims. In Fig. 7, the authors examined the expression levels of p53 in nuclear and cytosol of control and galectin-7 expressing cells and found that expression levels of p53 were low in galectin-7 expressing cells. But this result does not tell you whether galectin-7 inhibits p53 translocation or promotes p53 degradation or both. To distinguish those possibilities, p53 stability in presence or absence of galectin-7 should be measured. Perhaps, the author could also do a fractionation study using the cells described in Fig 7B. This may help determine whether there is a defect in p53 translocation in the galectin-7 expressing cells.

2) Some of the data presented in the manuscript need to be quantified. For example, the authors use low level of cleaved PARP-1 to justify the claim that R74S mutant is more potent than wild type galectin-7 in suppressing apoptosis (Fig 5c). However, it appears that expression level of b-actin loading control is also low in the R74S mutant cells. Similarly, the data presented in Fig 6A/B and Fig 7A could also use some quantifications.

Minor points:

1) For fig 6c, a real time PCR analysis would be more convincing.

2) A more detailed explanation of data presented on Fig 2A-D would be helpful for reader to understand this figure. For example, what are the two peaks in fig 2B means?

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