Reviewer’s report

Title: Identification of a potent herbal molecule for the treatment of breast cancer

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Reviewer: Addanki Pratap Kumar

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Manuscript by Koduru et al investigated the effect of PDBD, an active ingredient of a polyherbal mixture on several breast cancer cell lines and concludes that it has wide therapeutic application for treatment of BCa.

Major concerns:

1-Conclusions can be strengthened by presenting quantification of the western blotting data as there is difference in the kinetics between cells. For example on page 12, authors conclude that pAkt expression was not significantly down regulated in MDA 231 cells suggesting PDBD does not target Akt. However the figure provided shows approximately 50% reduction at 24h (Figure 4). Therefore quantification of the data with statistical analysis will strengthen the manuscript. In addition cell cycle data is presented for MDA 231 cells. However it would be helpful to show the data in MCF-7 cells since it was used to compare all other effects.

2-Results should be presented with more clarity. For example on page 7 authors state that Hs578T (99%) ----MDA 435 (58%). It is not clear what the number in parentheses mean. This figure is hard to understand in the absence of titles for axes. Although the authors concluded that MCF-10A cell viability is not affected by PDBD, it seems to be affected at higher doses which are not uncommon for any compound. However authors should discuss this.

3-What is the affect of PDBD on apoptosis in MCF-10A cells? It is surprising that the compound induced 100% apoptosis in 24h. Is necrosis part of this? This needs clarification.

4-In figure 5 non-phosphorylated I#b# is shown to be increased with PDBD treatment however western blot shows decrease at 24h which is contradictory. However at 12h time point there seems to be no significant change as presented. This needs to be clarified.

5-References are needed at several places. Figure legends are missing (e.g: figure 1 and 4)

Level of interest: An article of importance in its field

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'