Reviewer's report

Title: The Deleted in Liver Cancer 1 (Dlc1) tumor suppressor is haploinsufficient for mammary gland development and epithelial cell polarity

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Reviewer: Vimla Band

Reviewer's report:

The Deleted in Liver Cancer-1 (Dlc1) has been shown to function as a tumor suppressor in cancers, including breast cancers by induction of cell cycle arrest and apoptosis. In this manuscript the authors used Dlc1 GT/+ mice where one copy of Dlc1 was deleted, to investigate the role of Dlc1 in mammary gland development. The authors observed that decreased Dlc1 expression can disrupt the mammary epithelial cell polarization and ductal branching and concluded that Dlc1 is haploinsufficient. However, this study has little connection with cancer and also there is limited amount of data in this paper to support authors’ conclusions. Moreover, other researchers have shown that Dlc1 function as a tumor suppressor, and overexpression of Dlc1 causes cell cycle arrest and apoptosis. Thus, there is little novelty in this study. In addition, authors need to address the following concerns.

Major comments
1. In order to investigate how Dlc1 affects mammary gland, the authors need to use mammary lineage markers, cell proliferation and apoptosis markers to characterize the Dlc1 GT/+ mammary gland.
2. Does Dlc1 GT/+ mouse form hyperplasia or mammary tumor?
3. The Dlc1 GT/+ cells do not form lumen in 3D culture, this may be due to inhibition of apoptosis, and may not be due to lost polarity. The authors need to perform staining with both apoptotic and polarity markers to confirm their conclusions.
4. The quality of Figure 7A is not good. Please provide a better quality figure.

Minor comments
5. In order to connect Dlc1 function to RhoA, the authors may need to use dominant negative and constitutively active form of Rho and perform 3D culture experiments or provide evidence from the literature to connect D1c1 and RhoA.

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 do not have any competing interest