Reviewer’s report

Title: Melanoma cells replicate through chemotherapy by reducing levels of key homologous recombination protein RAD51 and increasing expression of translesion synthesis DNA Polymerase ζ

Version: 1 Date: 11 Oct 2017

Reviewer: Brian Gabrielli

Reviewer's report:

The authors have addressed some of my comments in their revised manuscript, however there remain some serious shortcomings to this study.

Figure 5 is presented to show the synthetic lethal interaction between loss of RAD51 expression with cisplatin treatment and the PARP inhibitor olaparib. This was performed in a single cell line, and there was no corresponding control of a cell line that did not down regulate RAD51 after cisplatin treatment or use of the RAD51-Flag over-expressing line to reverse this effect and demonstrate the this is really a synthetic lethal interaction with the loss of RAD51.

The 55 fold increase in cell number in 3 days is still extraordinary and this is not explained.

Figure 6C is a very poor blot, the bands are very difficult to see. I expect this because there is little apoptosis, max 13%. Need to use a better, more sensitive assay, e.g. a FACS based assay for cleaved caspase 3, Annexin V binding or similar.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes
Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
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I am able to assess the statistics

Quality of written English
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