Reviewer's report

Title: PARP inhibition and the radiosensitizing effects of the PARP inhibitor ABT-888 in in vitro hepatocellular carcinoma models

Version: 1 Date: 21 June 2014

Reviewer: Khanh Do

Reviewer's report:

Major Compulsory Revision
1. The authors show that the response of PLC-PRF-5 (with presumed lower PARP activity and lower capacity to repair defects) to combination of PARPi and IR followed a linear-quadratic model with radiosensitization starting at a higher dose of 3Gy than that of HepG2 cells, it would be better to have a direct comparison using the same model with the cells side by side

2. No rationale is provided for the use of doxorubicin as a chemo sensitizer, is it possible that the differential response of the cells to PARP inhibition is reflective of differential response to anthracycline rather than PARP inhibition? As PARP trapping is likely the mechanism of action, would the results be different if the authors used a topoisomerase inhibitor?

3. We would advocate evaluation of caspase or other markers of apoptosis as a direct evidence of enhanced cytotoxicity of PARPi + IR, rather than indirect evidence using clonogenic assays as the authors have done

Minor Essential Revisions: None
Discretionary Revisions: None

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

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare that I have no competing interests