Reviewer's report

Title: Suppression of microRNA-31 increased the sensitivity of HCT-116 cells to 5-FU at early stage, and affected cell migration and invasion ability in a p53 independent manner in colon cancer cells

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Reviewer: Georgia Sotiropoulou

Reviewer's report:

The manuscript by Wang et al. entitled: "Suppression of microRNA-31 increased the sensitivity of HCT-116 cells to 5-FU at early stage, and affected cell migration and invasion ability in a p53 independent manner in colon cancer cells" aimed to investigate the functional roles of miR-31 in colorectal cancer (CRC).

There are a few major concerns regarding this manuscript:

(A) The novelty and value of the results presented here are rather limited. The study is limited to in vitro assays only to describe a phenotype, while no attempt was made to touch on the underlying mechanisms. The authors do not comment on the significance and potential implications of their observations, especially in the light of other important published studies, as for example those by Creighton CJ, et al. Cancer Res 2010, 70:1906-1915 and Valastyan S, et al. Cell 2009, 137:1032-1046.

(B) More importantly, the conclusions drawn are not supported by the experimental data. The conclusion presented in the title that "Suppression of microRNA-31 affected cell migration and invasion ability in a p53 independent manner" is not justified, since the authors found that cell invasion was increased by 8-fold in HCT-116p53+/+ cells and by 2-fold in HCT-116p53-/- cells. Similarly, the increase in the sensitivity of HCT-116 cells to 5-FU is quite modest.

(C) Unfortunately, there are several problems pertaining to the experimental part. For example:

1) It is not described whether the cell lines used came from another lab as a gift or these were established by the authors. It is not shown that p53 is expressed and functional in HCT-116p53+/+ cells as compared to control HCT-116p53-/- cells.

2) It is not possible to assess the reproducibility of the data presented here, as it is not described in the manuscript how many times each experiment has been repeated, whether each point was done in duplicate, triplicate, etc. This is important, as it is widely known that there is variability inherent in this kind of in vitro assay.

3) The conclusion that "Suppression of miR-31 did not change the cell cycle distribution" base don data presented in Figure 4 is subject to skepticism as the
cells were not synchronized.

(D) The manuscript is poorly written and should be extensively edited. This is one of the largest problems of this manuscript; there are too many grammatical and syntax errors to address in a review. The authors need to communicate with an English editor before resubmission of this manuscript.

(E) The Discussion section is too lengthy. There is redundancy throughout the manuscript.

Level of interest: An article of limited interest

Quality of written English: Not suitable for publication unless extensively edited

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'