Reviewers report

Title: Expression of miR-34c induces G2/M cell cycle arrest in breast cancer cells

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Reviewer: P Sh Soon

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Expression of miR-34c induces G2/M cell cycle arrest in breast cancer cells

Using TGCA data, Achari et al identified the miR-34 family as miRNAs of interest allowing clustering of breast cancers into basal-like and non-basal-like tumours. They found that miR-34c was expressed at lower levels in basal-like tumours compared to non-basal-like tumours and to normal breast tissue while there was no difference in expression of miR-34a and miR-34b. They found however that lower expression of both miR-34b and miR-34c was associated with more new tumour events. They went on to study miR-34c in 3 basal-like breast cancer cell lines and found that increasing the expression of miR-34c in these cell lines resulted in decreased proliferation and increased cell death in these cells. The cells accumulated in the G2/M phase. The authors found that PRKCA and CDC23 may be targets of miR-34c.

Major Compulsory Revisions

1. Was expression of miR-34c assessed in hormone receptor positive breast cancer cell lines to compare with the basal-like breast cancer cell lines?
2. Were the functional end-points of migration or invasion investigated?
3. Did the authors perform luciferase assays to confirm that PRKCA and CDC23 are targets of miR-34c?

Discretionary Revisions

4. Since there is a difference in new tumour events between low and high expressing groups of miR-34b and miR-34c and the levels of the 2 miRNAs correlated, are you able to provide an explanation as to why there was no correlation between expression of miR-34b and basal-like versus non-basal-like tumours in the TCGA data?
5. Did the authors assess levels of miR-34b in the basal-like breast cancer cell lines? Given the findings mentioned in point 4, were experiments performed to assess effect of ectopic expression of miR-34b in the basal-like cell lines?

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.