Reviewer’s report

Title: Loss of miR-133a expression associated with poor survival of breast cancer and restoration of miR-133a expression inhibited breast cancer cell growth and invasion

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Reviewer: Junfang Ji

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In this work, Lee et al provided data demonstrating that 1) the expression of miR-133a was gradually reduced from normal through benign to cancerous breast tissues; 2) the reduced miR-133 was associated with short relapse-free survivals; 3) miR-133 could suppress cell growth, cell migration and cell invasion; 4) FSCN1 is the potential target gene of miR-133. According to these results, the authors concluded that loss of miR-133a expression associated with the poor survival of breast cancer and restoration of miR-133a expression inhibited breast cancer cell growth and invasion.

Although the data are interesting, this paper appears not to represent a strong candidate for publication in BMC Cancer yet. To increase the quality of this paper, some concerns might be addressed.

1. Major Compulsory Revisions
   a. The survival analysis was only done in one cohort. The further validation is required in an independent cohort to draw the conclusion.
   b. This paper showed the function of miR-133 in suppressing cell migration and invasion and miR-133 targeting FSCN1 disjointedly. To increase the logic and rationality of this miR-133 functional part, it will be better to examine and to show 1) the linear correlation of miR-133 expression and FSCN1 level in the clinical samples and cancer cell lines; 2) whether the function of miR-133 in suppressing cell migration and invasion is through targeting FSCN1.
   c. The novelty of this paper seems to be weak. It has been shown that miR-133 is down-regulated in breast cancer (Iorio et al, 2005) and FSCN1 is the target gene in esophageal squamous cell carcinoma and bladder cancer (Kano et al, 2010; Chiyomaru et al, 2010). It will be good to interpret the rationality of choosing miR-133a as the object to work with.

2. Minor Essential Revisions
   a. The description in the text (line 13-14 at page 14) and the labeling in the figures (Fig 2A, 2B) are inconsistent. In the text part, it wrote that the growth inhibition were 0.8%, … and 18.7 for 60h, 84h, 108h and 132h after gene transfection. However, the figures showed that the growth inhibition assay was done at 24h, 48h, 72h and 96h after inoculation. This needs to be clarified.
   b. For Figure 1D, please describe how the figure was plotted. What do the bar
and error bar represent?

c. In line 4-5 of page 3, “…miR-133a can suppresses tumor cell invasion and migration potential and targeted expression of FSCN1…” should be “…miR-133a can suppress tumor cell invasion and migration and target the expression of FSCN1…”.

d. In line 2 of page 9, “…the manufacturer’s protocol. The miR-133a…” should be “…the manufacturer’s protocol. The miR-133a…”.

e. In line 11 of page 13, “…Furthermore, , we…” should be “…Furthermore, we…”.

**Level of interest:** An article of limited interest

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests.