Reviewer's report

Title: Characterization of global microRNA expression reveals oncogenic potential of miR-145 in metastatic colorectal cancer.

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Reviewer: Eva Bandres

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The findings from the study are interesting and may help to provide additional insights about the role of microRNAs in metastasis colorectal carcinogenesis. However, the initial enthusiasm is significantly limited by some weaknesses which make this study difficult to interpret.

The authors show that 37 miRNAs are altered in CRC samples of different stages compared with four matched normal colon tissue samples. Some of their results confirm previous published data and others are novelty. Moreover, they validated these results with other different techniques (Q-RT-PCR and Northern blot).

Major Compulsory Revisions:

However, the most important conclusion of this manuscript is that miR-145 seems to function in opposing manner in metastatic and non-metastatic CRC cell lines. There are several reports that showed that miR145 repress cell proliferation in other CRC cell lines (SW480, DLD1, LS174T or HCT116). In this manuscript, the authors show that miR-145 augment cell proliferation and reduce E-cadherin expression in the SW620 metastatic CRC cell line. The authors rationalize that the opposing effect could be due to the metastatic potential and this hypothesis should be verified.

In this sense, the authors should provide data from clinical samples supporting the oncogenic function of miR-145. miR-145 expression should be detected increased in metastatic versus non-metastatic samples.

On the other hand, it would be also important to demonstrate these data in other metastatic cell line (T84 or Lovo) or more importantly the author should demonstrate that the effect of miR-145 is different in the isogenically matched no metastatic SW480 cell line. Without these results it is not possible to conclude that miR-145 acts as oncogene in metastatic colorectal cancer or the results are specific of SW620 cell line.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

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