


Identification of miR-125a and miR-106b signature as a potential diagnostic biomarker in breast cancer tissues

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Abstract

MicroRNAs (miRNAs) have essential roles in the etiology of breast cancer and are regarded as possible markers in this malignancy. In order to find new markers for breast cancer, the current study has measured expression level of four miRNAs, namely miR-125a, miR-106b, miR-96 and miR-92a-3p in the paired breast samples. Expression levels of miR-125a and miR-106b were higher in tumoral tissues compared with control tissues (Expression ratios (95% CI)=4.01 (1.96–8.19) and 3.9 (1.95–7.81); P values=0.0005 and 0.0003, respectively). miR-106b and miR-125a differentiated between malignant and non-malignant tissues with AUC values of 0.7 and 0.67, respectively. We detected association between expression of miR-106b and clinical stage (P=0.03), in a way that its expression was the lowest in the advanced stages. Finally, significant relationships were found between miR-96 and miR-125a in both tumoral and non-tumoral specimens ($\rho=0.76$ and 0.69 , respectively). This nonparametric measure of rank correlation also showed relationship between miR-106b and miR-96 in both sets of samples ($\rho=0.63$ and 0.61 , respectively). Cumulatively, the assessed miRNAs, particularly miR-125a and miR-106b are putative targets for further expression and functional assays in breast cancer.