Aberrant expression of circ-0072309 in breast carcinoma as a promising biomarker for diagnosis

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Background

Breast cancer (BC) is one of the most common cancers and the second highest mortality in women worldwide. Different studies have shown that there is a close correlation between circRNAs and initiation and progression of different cancers and diseases; however, knowledge about the correlation between non-coding RNAs, especially the circRNAs and BC, is not fully explored. In this study, the expression level of circ-0072309 (LIFR) in BC was investigated experimentally and miRNA target genes for it was proposed.

Materials and Methods

BC tissue specimens (twenty-nine causes) and their corresponding adjacent normal tissue were collected during the surgery and has-circ-0072309 expression in breast cancer tissues was analyzed using qRT-PCR. A series of functional experiments were carried out to investigate has-circ-0072309 function in breast cancer development. Additionally, miRNAs that potentially target has-circ-0072309 were predicted by bioinformatic method. miRTargetlink database (https://ccb-web.cs.uni-saarland.de/mirtargetlink) and DIANA database (http://diana.imis.athena-innovation.gr/DianaTools/index.php?r=mir path/index/) were used to predict interactions of miRNAs with LIFR.

Results

The lower expression levels of circ-0072309 in BC tissues was showed compared to paired adjacent normal tissues with P value (P <0.002). The area under the receiver operating characteristic (ROC) curve was 0.768. In addition, a total 10 miRNAs that can be targeted by candidate circRNA was predicted base on bioinformatics databases. Moreover, miRNAs selection tools predicted that miR-125a-5p and miR-203a-3p can be targeted by circ-0072309.

Circ_0072309	Mean	SD	N	P-value
$-\Delta ct\ (T)$	-9.7751	2.3489	29	0.002
$-\Delta ct\ (N)$	-8.1425	1.3201	29	

circRNAfoldchange
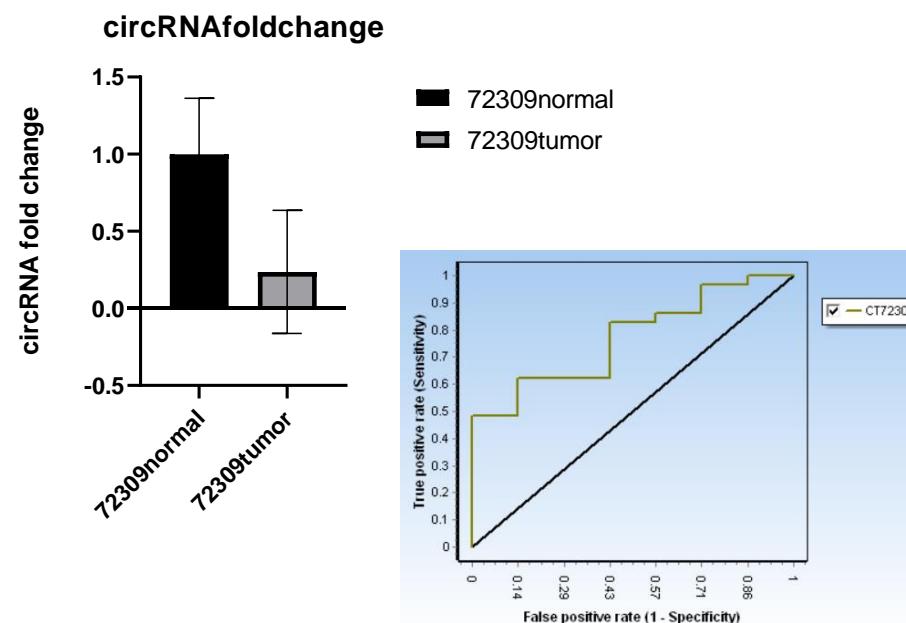
Conclusion

Our findings revealed that the has-circ-0072309 plays an essential role in BC progression and circ-0072309 could serve as a prognostic biomarker of BC.

References

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