

ABSTRACT

Background: Breast cancer is the major type of cancer and the main leading cause of cancer related death in women. For the early detection biomarker identification is very significant.

Aim: The aim of the present study was to investigate the miRNA biomarkers in breast cancer.

Methods: Comprehensive bioinformatics analysis was performed on the two GEO dataset “GSE121396” and “GSE20437”. DIANA Tool-mir path V.3, STRING, Cytoscape 3.6.0, Target Scan, Enricher and Tarbase v8 were used for the identification of differentially expressed miRNA in different pathways and their targets in the breast cancer.

Results: hsa-mir-205-5p was identified in the present study as differentially expressed in the breast cancer. One differentially expressed gene also identified that is E2F1 and is the target gene of miR-205. miR-205 upregulates the E2F1 expression in the breast cancer.

Conclusion: hsa-miR-205-5p is differentially expressed in breast cancer and can be used as a biomarker.

Keywords: Breast cancer; miRNA; differential expression; E2F1; proliferation