Evaluation of miRNAs 9 and 342 expressions in sera as diagnostic and prognostic biomarkers for breast cancer

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Abstract

OBJECTIVE:Molecular markers for the detection of breast cancer and its different types, grades, and stages lack enough sensitivity and specificity. This study evaluates the expression of miRNAs 9 and 342 in sera of different types, grades, and stages of BC. Moreover, the assessment of their sensitivity, specificity, diagnostic, and prognostic role in detecting different types of BC. METHODS:Blood was collected from 200 females outpatients, divided into five groups each 40 subjects: control, benign breast tumor, estrogen receptor (ER+)/progesterone receptor (PR+) BC, human epidermal growth factor receptor (HER+) BC, and triple-negative BC. BC subjects were further subdivided according to grade and stage. Expressions of miRNAs 9 and 342 were measured for all subjects by real-time polymerase chain reaction (RT-PCR). RESULTS:Results showed that serum expression of both miRNAs 9 and 342 can be used for the diagnosis of different types of BC. Their expression can be used to significantly differentiate between different grades and stages of BC. MiRNAs 9 and 342 showed high sensitivity of 92.5% and specificity of (81.2 and 88.7%), respectively, for triple-negative BC. CONCLUSION:The expressions of miRNAs 9 and 342 provide potential roles as serological biomarkers for the diagnosis and prognosis of different types, grades, and stages of BC

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