**Abstract**

Aberrant expression of miRNAs has a link with tumorgenesis and their deregulation is reported in biological fluids of cancer patients. Authors aimed to investigate the diagnostic role of miRNA-17-5p, miR-155 and miRNA-222 in serum samples from breast cancer patients (*n* = 80), benign breast patients (*n* = 40) and healthy individuals (*n* = 30) using quantitative real-time PCR technique. Median levels of investigated markers revealed significant increase in primary breast cancer followed by benign and control groups. Investigated miRNAs reported significant relation with clinical stages and histological grading, while only miRNA-17-5p showed significant relation with hormone receptors. When considering investigated miRNAs as compared to tumor marker, their sensitivities were superior over tumor markers for early diagnosis of breast cancer, detection of early stages and low grades breast cancer patients. In conclusion, detection of the miRNA-17-5p, miR-155 and miRNA-222 expression levels in serum samples is significant promising molecular markers for early breast cancer diagnosis.

Keywords: [Breast cancer](https://www.tandfonline.com/keyword/Breast%2BCancer), [circulating molecular marker](https://www.tandfonline.com/keyword/Circulating%2BMolecular%2BMarker), [diagnosis](https://www.tandfonline.com/keyword/Diagnosis), [miRNAs](https://www.tandfonline.com/keyword/Mirnas)