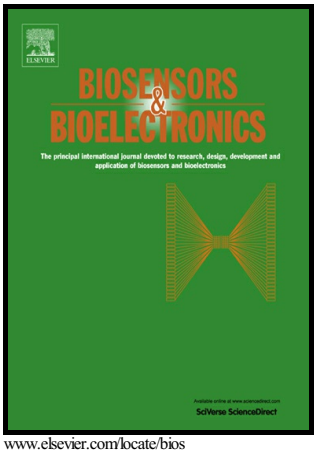

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Abstract

MicroRNAs (miRNAs) are small, endogenous, noncoding RNAs, shown to be expressed abnormally in many tumors and identified as predictive biomarkers for early diagnosis of several cancers including the breast. Therefore, the label-free and highly sensitive detection of miRNAs is of critical significance. In this work, a highly sensitive and label-free nano-genosensor is developed for the detection of miRNA-21, a known breast cancer biomarker, based on a specific