

Real-time and label-free detection of liver cancer using aptamer immobilized nanosensor

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Nanoscale biosensors are emerging as one of the most impressive platforms for specific identification of biomolecules in the life sciences, with the nanotechnology revolution up to the scale that concert with the biological system. To date, there have been many reports for the nanoscale biosensors based on antigen-antibody interactions. In this work, we demonstrated novel aptamer immobilized nanosensor which is one of the promising platforms in biosensor applications for cancer diagnostics. It is expected that aptamer-antigen interactions can give us more effective options than antibody based biosensors due to their smaller size as compared to that of antibody generally. To evaluate and prove these effects in this work, the aptamer functionalized ZnO/a-C core-shell nanowire based nanosensors were successfully demonstrated for the real-time and label-free detection of Hepatocellular Carcinoma (HCC) markers