

Impedimetric Hg^{2+} analysis by employing thrombin label

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In this presentation, we demonstrate a quantitative analysis on the DNA-modified electrode surfaces which permitted highly sensitive detection of Hg^{2+} . Thiol-functionalized aptamer-oligonucleotide including poly-T sequence was immobilized on a gold electrode surface, and the resulting surface was used as a platform for sensing Hg^{2+} . After the sensor surface was exposed to the solution of Hg^{2+} we monitored the insertion of Hg^{2+} between T-T mismatches to form a T- Hg^{2+} -T bond using electrochemical impedance spectroscopy. The results showed that the charge transfer resistance on the surface increased with increasing Hg^{2+} concentration, which indicates the higher Hg^{2+} concentration the closer distance between the aptamer part and electrode surface.