Electronic Supplementary Material (ESI) for Analytical Methods.

Supplementary Information

Isothermal single base extension based lateral flow biosensor and electrochemicalassay for gene point mutationdetection

Characterization of the modified gold electrode

Electrochemical impedance spectroscopy (EIS) was utilized to characterize the interface properties of the modified electrode. Fig. 1 displayed the typical Nyquist plots of the bare and modified gold electrodes. Curve a represents the electrochemical impedance spectra for bare electrode, which is almost linear, indicating the low electronic transfer resistance of the bare electrode to the reduction oxidation reaction on the electrode surface. After the thiole modified oligonucleotide was cast on the surface of Au electrode, the electron transfer resistance value, namely the surface resistance increased dramatically, suggesting that the structure and properties of the modified gold electrode has changed.

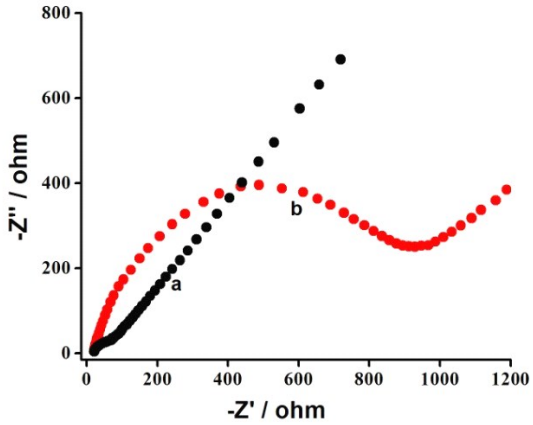

Figure.S1. Electrochemical impedance spectra for bare Au electrode (a) and modified Au electrode.

Table. 1. Sequence of oligonucleotides in the experiment.

Name	Sequence (5’-3’)	Tm
Primer 1	GTGATAGCTGGTAAGGGGGCTTGTGGTAGTTGGAGCTGT	68.7
Primer 2	GTGATAGCTGGTAAGGGGCTTGTGGTAGTTGGAGCTGT	64.5
Primer 3	GTGATAGCTGGTAAGGGCTTGTGGTAGTTGGAGCTGT	60.9
Primer 4	GTGATAGCTGGTAAGGCTTGTGGTAGTTGGAGCTGT	57.0
Primer 5	GTGATAGCTGGTAAGCTTGTGGTAGTTGGAGCTGT	52.4
Primer 6	GTGATAGCTGGTAAGTGTGGTAGTTGGAGCTGT	47.7
Wide type K-Ras template	GGGCACTCTTGCCTACGCCA**A**CAGCTCCAACTACCACAAGCCCC	
Mutant K-Ras template	GGGCACTCTTGCCTACGCCA**C**CAGCTCCAACTACCACAAGCCCC	
Capture Probe (S2)	GTGATAGCTGGTAAGGTGATAGCTGGTAAG	
AuNP-conjugated oligo	S1: CTTACCAGCTATCAC-SH	
Probe S1	SH-AAAAAACAGCTCCAACTACCACAAGCCCCCTTACCAGCTATCAC	

Notes.The underlined represents the tag sequence, and the loci of K-ras mutation is bolded and underlined. SH means thiol-modified oligonucleotide.