

Supporting Information

Electrochemical Sensing of Exosomal MicroRNA Based on Hybridization Chain Reaction Signal Amplification with Reduced False-Positive Signals

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S1.1 Exosome Isolation.

Briefly, after 48 h of culture in bovine serum-free medium, the cell culture medium was collected and then centrifuged at 300 g for 10 min to eliminate the dead cells. The supernatant was then centrifuged at 16500 g for 30 min and filtered using a 0.22 μm filter. Subsequently, the supernatant was subjected to ultracentrifugation at 110,000 g for 2 h to precipitate exosomes, washed with PBS, and precipitated again. Finally, the sediment exosomes were resuspended in PBS and stored at -80 °C until use.

S1.2 Gold Electrode Treatment.

The gold electrode was firstly polished to a mirror surface with 0.3 and 0.05 micron aluminum oxide powder and then ultrasonically cleaned in ethanol and deionized water, respectively. Next, the electrode was immersed in the piranha solution (v(98% H_2SO_4) : v(30% H_2O_2)=3 : 1) for 15 min and thoroughly washed with deionized water (*Caution: piranha is highly corrosive and must be used with care*), and then the electrode was electrochemically cleaned in a 0.5 M H_2SO_4 at a scanning potential of -0.2 V to 1.7 V until a stable cyclic voltammetry was obtained. Thereafter, the electrode was immersed in ethanol for 30 min and then thoroughly washed with deionized water and dried with nitrogen.

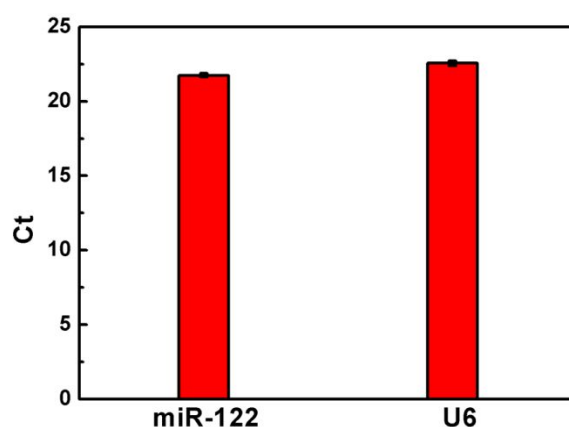


Figure S1. The Ct values of exosomal miR-122 and U6.

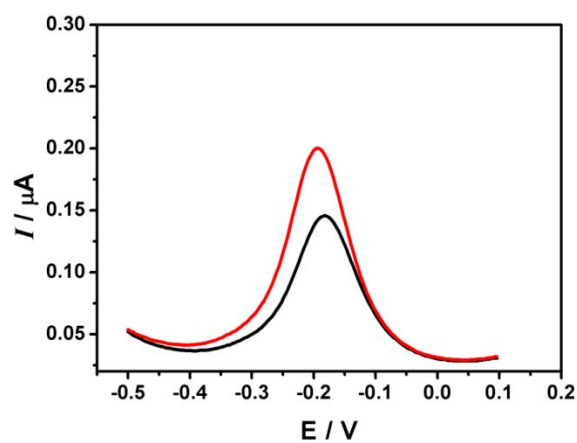


Figure S2. The DPV response of MCH/hpDNA modified gold electrode (black line) and H1/H2/MCH/hpDNA modified gold electrode (red line).

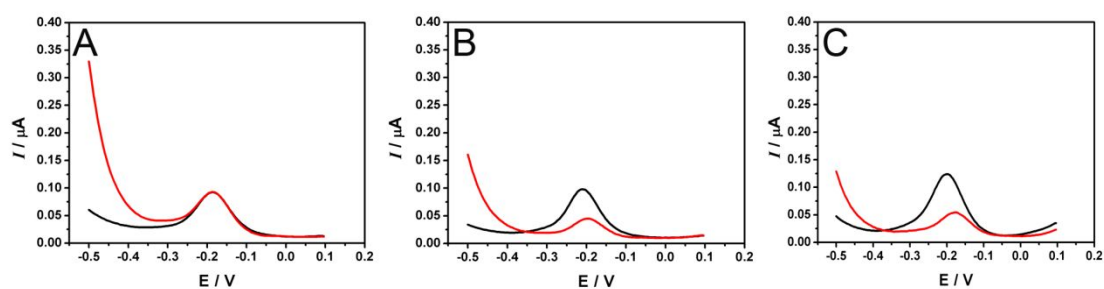


Figure S3. The DPV response of ssDNA before (black line) and after (red line) the addition of Exo I, respectively, (A) S-12; (B) S-24; (C) S-48.