Supporting Information

Assembly of Selective Biomimetic Surface on an Electrode Surface: A Design of Nano–Bio Interface for Biosensing

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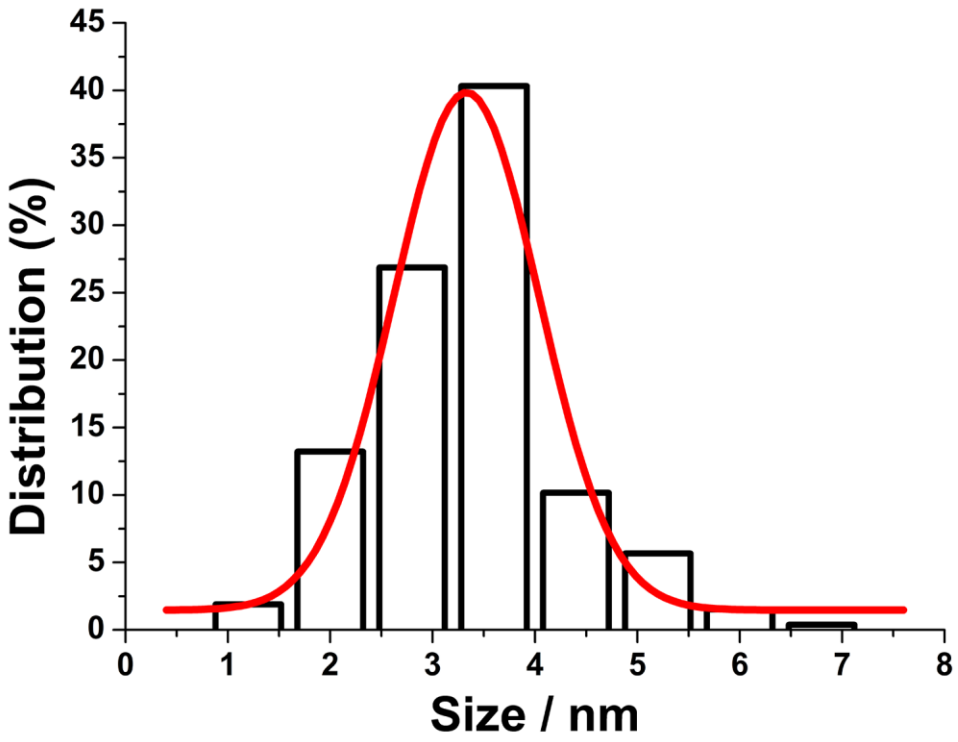

Figure S1. Size distribution of the AgNPs anchored on GO sheet, caculated from 300 individual AgNPs with the software of NonaMeasure V1.2.5. The red curve shows the corresponding Gaussian fitting of the size distribution, with a symcenter of 3.3 nm and a FWHM of 1.7 nm.

Chronocoulometry (CC) was used to caculate surface density of E-TBA. A cationic redox molecule, $[Ru(NH_3)_6]^{3+}$ (RuHex), can stoichiometrically bound to the anionic phosphate of DNA strands *via* electrostatic interaction with DNA.[1] RuHex complexes serve as signaling molecules whose cumulative redox charge is a direct function of the amount of DNA strands proximal to the electrode surface.[2] The experiment parameters were as follows: scan rate, 100 mV s^{-1}; pulse period, 250 ms; sample interval, 20 ms. The text solution was 10 mM Tris-HCl, pH 7.4.

In **Figure S2**, ΔQ corresponds to RuHex molecules electrostatically bound to surface-confined E-TBA. The surface density of E-TBA (Γ_{DNA}) was calculate by using the following equation: $\Gamma_{DNA} = (\Delta QNA/nFA)(z/m)$, where n is the number of electrons in the reaction, A is the area of the working electrode, m is the number of nucleotides in the DNA, z is the charge of the redox molecules and NA is Avogadro's number.[3]

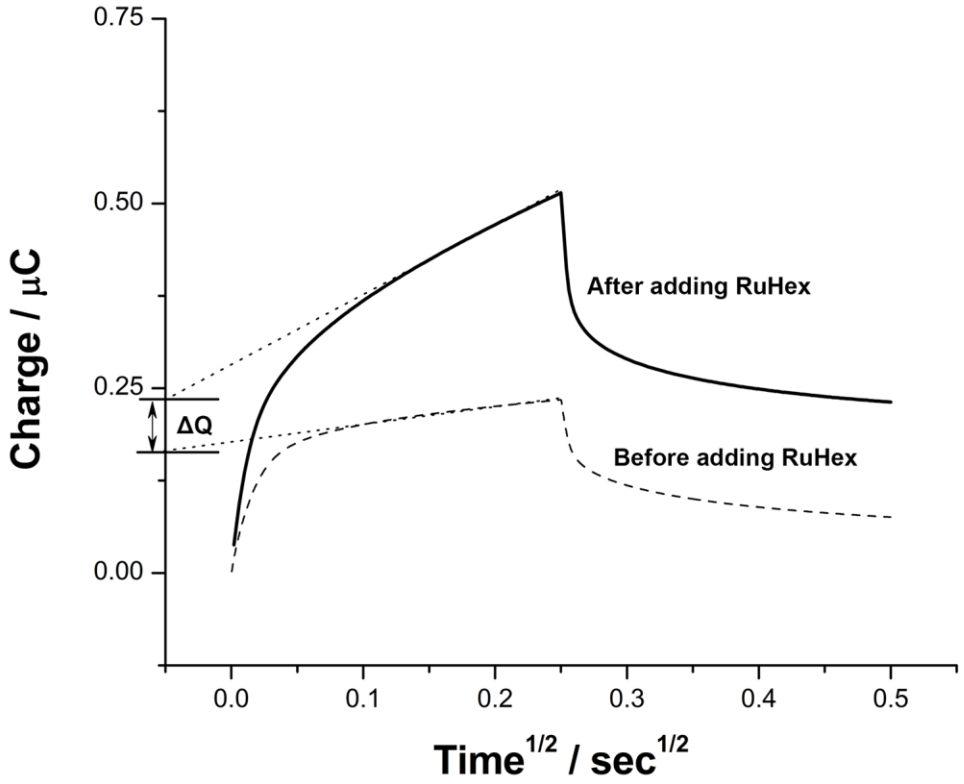

Figure S2. Chronocoulometric response curves for E-TBA modified electrode without (dash line) and containing (solid line) 50 μM RuHex.

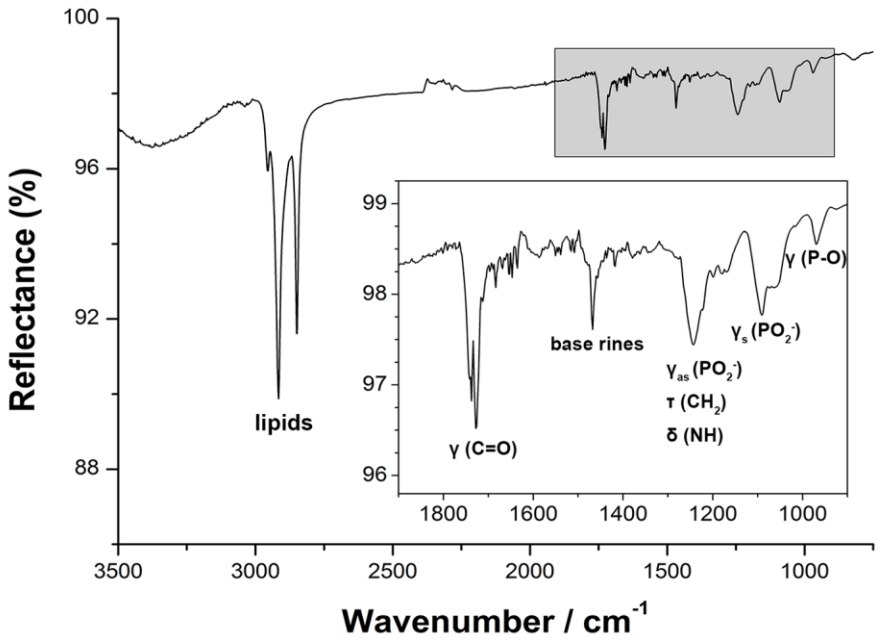

Figure S3. The micro-FTIR reflective spectra of the SBMMS on gold electrode surface.

(1) Ho, P. S.; Frederick, C. A.; Saal, D.; Wang, A. H.; Rich, A. *J. Biomol. Struct. Dyn.* **1987**, *4*, 521-534.

(2) Steel, A. B.; Herne, T. M.; Tarlov, M. J. *Anal. Chem.* **1998**, *70*, 4670-4677.

(3) Zhang, J.; Song, S.; Wang, L.; Pan, D.; Fan, C. *Nat. Protoc.* **2007**, *2*, 2888-2895.