

Electronic Supplementary Material

Gold nanoparticles/single-stranded DNA-reduced graphene oxide nanocomposites based electrochemical biosensor for highly sensitive detection of cholesterol

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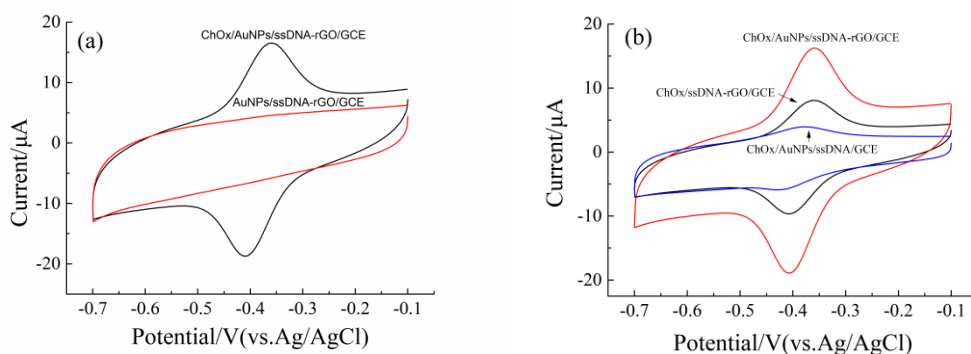


Fig. S1 (a) CVs of AuNPs/ssDNA-rGO/GCE and ChOx/AuNPs/ssDNA-rGO/GCE; (b) ChOx/AuNPs/ssDNA/GCE, ChOx/ssDNA-rGO/GCE and ChOx/AuNPs/ssDNA-rGO/GCE in 0.1 mol L⁻¹ PBS (pH 6.5). Scan rate: 200 mV s⁻¹

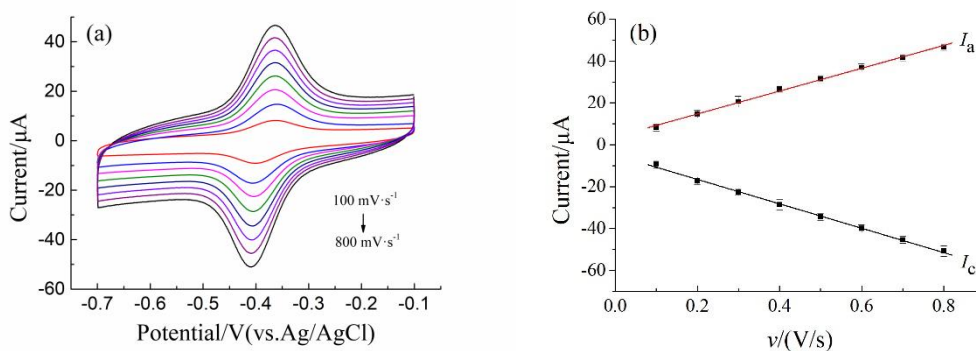


Fig. S2 (a) CVs of the ChOx/AuNPs/ssDNA-rGO/GCE at scan rates of 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8 V/s in 0.1 mol L^{-1} PBS (pH 6.5), respectively; (b) Plots of anodic peak currents and cathodic peak currents vs. scan rates.

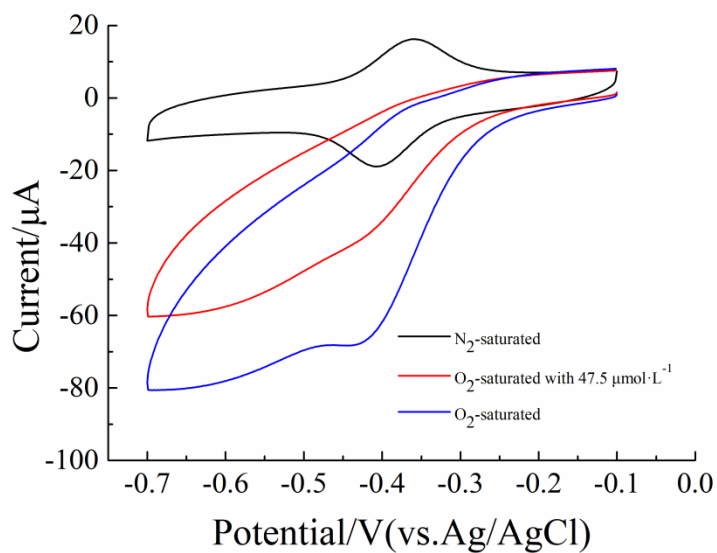


Fig. S3 CVs of the ChOx/AuNPs/ssDNA-rGO/GCE in N_2 -saturated, O_2 -saturated with $47.5 \mu\text{mol L}^{-1}$ cholesterol (final concentration) and O_2 -saturated 0.1 mol L^{-1} PBS at pH 6.5. Scan rate, 200 mV s^{-1} .

Table S1 Determination of the cholesterol in human serum by the proposed biosensor

Sample	Cholesterol detected /mmol L ⁻¹	Cholesterol Spiked /μmol L ⁻¹	Found Cholesterol /μmol L ⁻¹	Recovery /%	Hospital Data /mmol L ⁻¹
1	3.41 ±0.12	-	-	-	3.49
		20	19.20 ±1.37	96.0	
		40	41.60 ±2.13	104.0	
		60	60.80 ±2.72	101.3	
2	4.75 ±0.13	-	-	-	4.72
		20	20.80 ±0.20	104.0	
		40	38.40 ±0.14	96.0	
		60	58.80 ±0.24	98.0	

Average value from three determinations