Electronic Supplementary Material (ESI) for RSC Advances.

Supplementay information

An electrogenerated chemiluminescence biosensor based on g-C_3N_4-hemin nanocomposite and hollow gold nanoparticles for the detection of lactate

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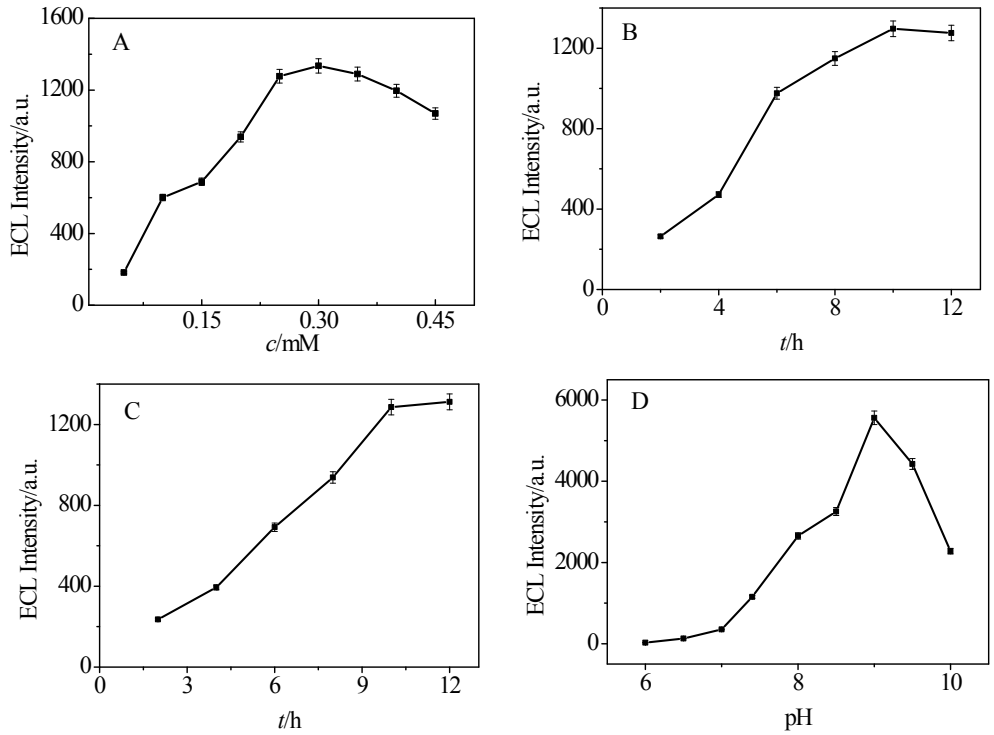

Fig. S1 Effect of (A) luminol concentration and the incubation time of (B) HGNPS and (D) LOX on the ECL response of the biosensor to 0.028 mM lactate in 0.10 M PBS (pH 7.4). (C) Effect of pH on the ECL response of the biosensor to 0.028 mM lactate in 0.10 M PBS. Scan rate: 0.50 V/s.

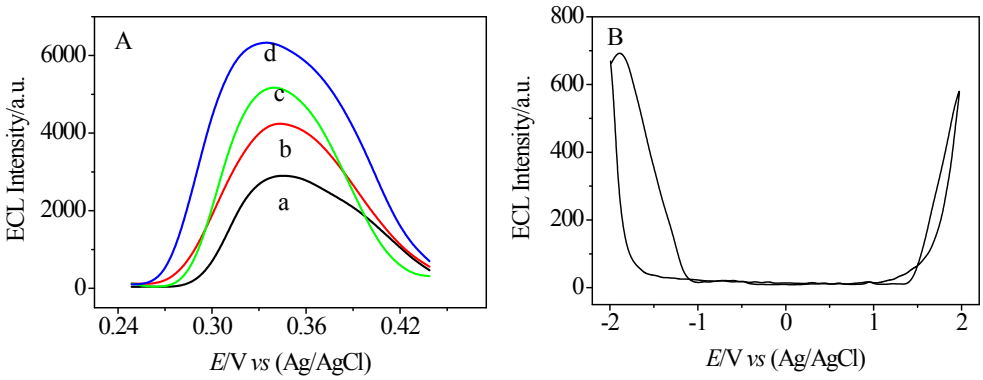

Fig. S2 (A) ECL profiles of (a) bare GCE, (b) g-C_3N_4/GCE, (c) g-C_3N_4-hemin/GCE and (d) HGNPs/g-C_3N_4-hemin/GCE in 0.10 M PBS (pH 7.4) containing 0.30 mM luminol and 0.063 mM H_2O_2. (B) ECL responses of g-C_3N_4/GCE in 0.10 M pH 7.4 PBS under the scanning potential in the range of -2.0~ 2.0 V. Scan rate: 0.50 V/s.

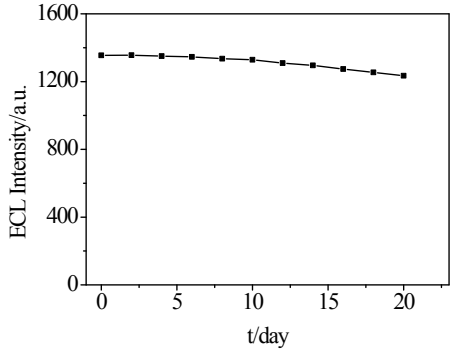

Fig. S3 Stability of the biosensor in the presence of 0.028 mM lactate in 0.10 M pH 7.4 PBS. Scan rate: 0.50 V/s.

Table 1. Comparison of different methods for the determination of lactate

Electrode materials	Determination method	Linear range (mM)	Detection limit (mM)	Reference
NADH/LDH/Nano-CeO_2/GCE	Amperometry	0.2–2		1
PDDA/LOD/ZnO/MWCNTs	Amperometry	0.2–2.0	0.006	2
LOD/mucin/albumin hydrogel matrix	Amperometry	2×10^{-3}-1	8×10^{-4}	3
LOX/cupric oxide nanoparticles	Fluorimetry	8×10^{-4}-8×10^{-2}	4.5×10^{-5}	4

LOX/HGNPs /g-C_3N_4-hemin/GCE	ECL	1.7×10^{-5}-0.50	5.5×10^{-6}	This work

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