Fabrication of novel nitrogen-doped graphene−hollow AuPd nanoparticle hybrid films for the highly efficient electrocatalytic reduction of H_2O_2

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SUPPORTING INFORMATION

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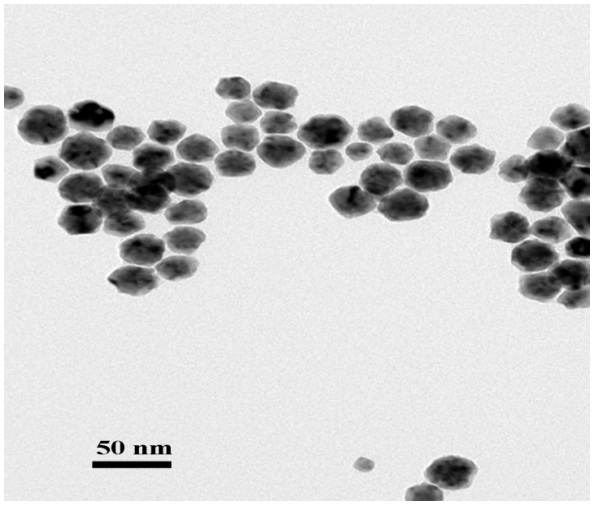

Figure S1. TEM of sAu1Pd4 alloy nanoparticles.

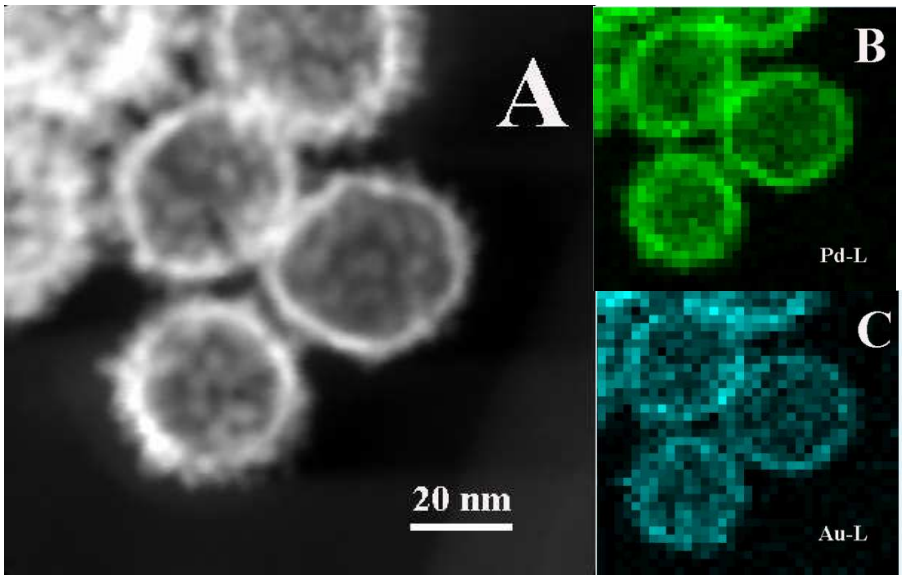

Figure S2. HAADF-STEM image of hAu1Pd4 NPs (A), the element mapping of Pd (B) and Au (C) in hAu1Pd4 NPs.

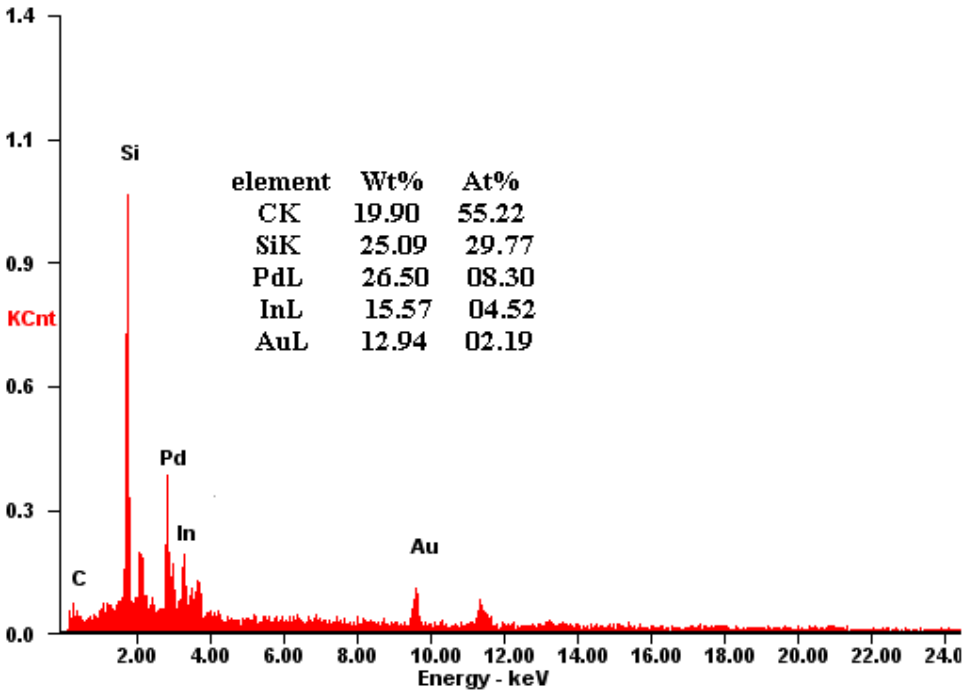

Figure S3. EDX of Au1Pd4 alloy nanoparticles.

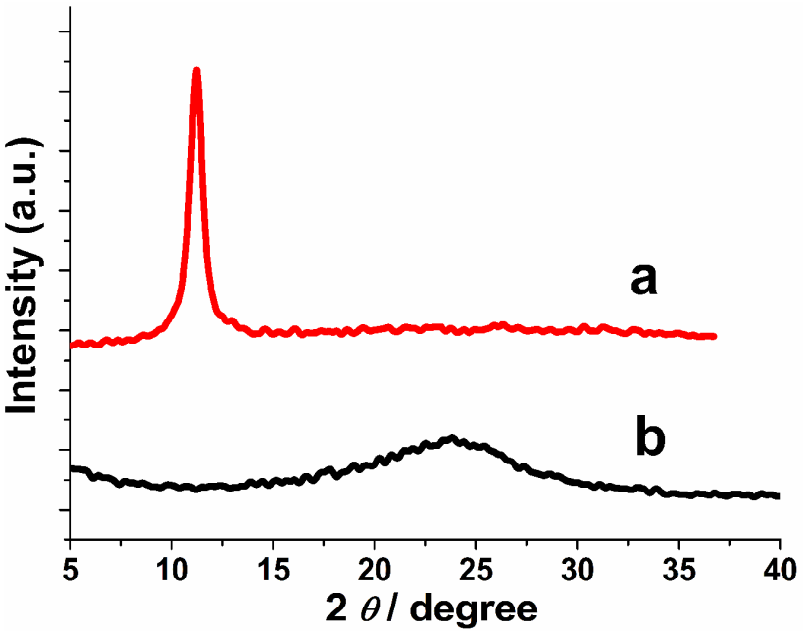

Figure S4. XRD patterns of GO (a) and NG (b).

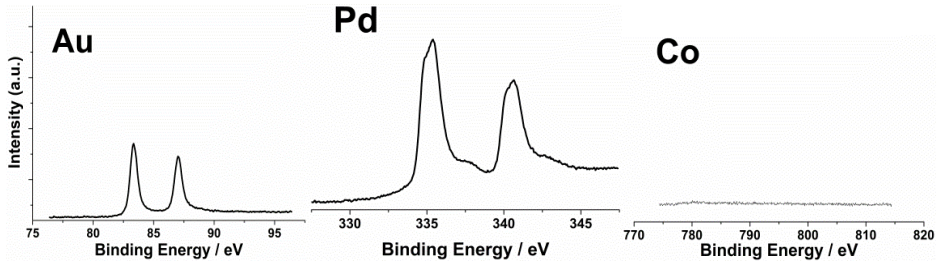

Figure S5. XPS spectra of Au, Pd and Co in NG-hAu1Pd4 hybrid.

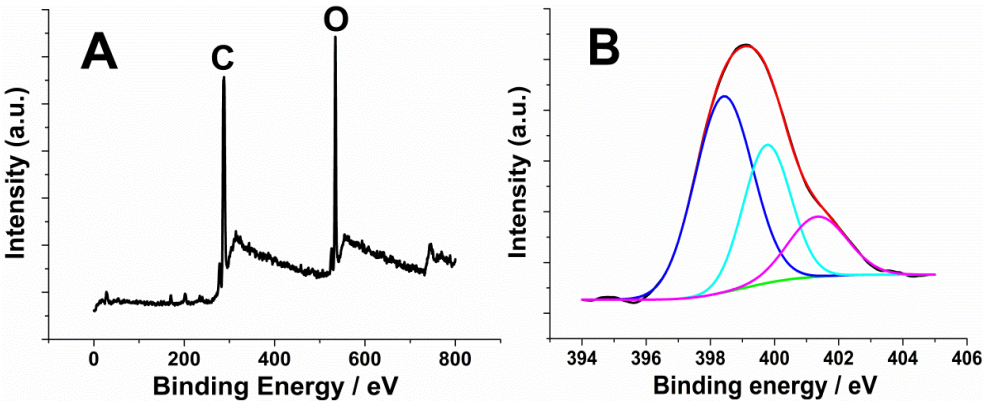

Figure S6. (A) XPS spectra of GO; (B) high resolution N1s spectra of NG.

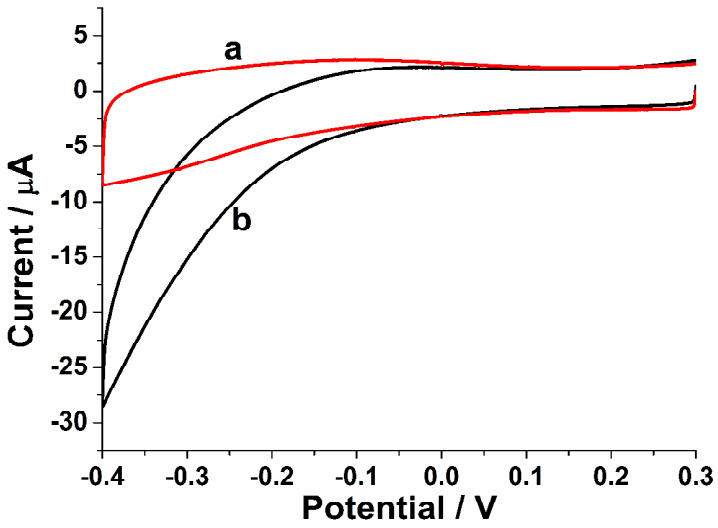

Figure S7. CVs of NG/GCE in 0.1 M PBS (pH 7.0) containing 0 (a) and 1 (b) mM H_2O_2.

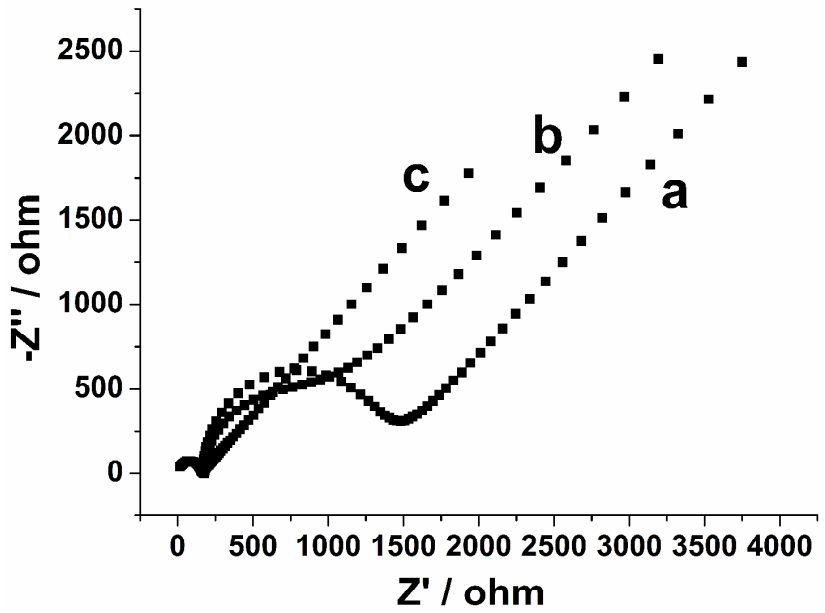

Figure S8. Nyquist plots of GCE (a), G/GCE (b) and NG/GCE (c). Solution composition: 0.1 M KCl containing 5.0 mM $Fe[(CN)_6]^{3-/4-}$ (1:1).

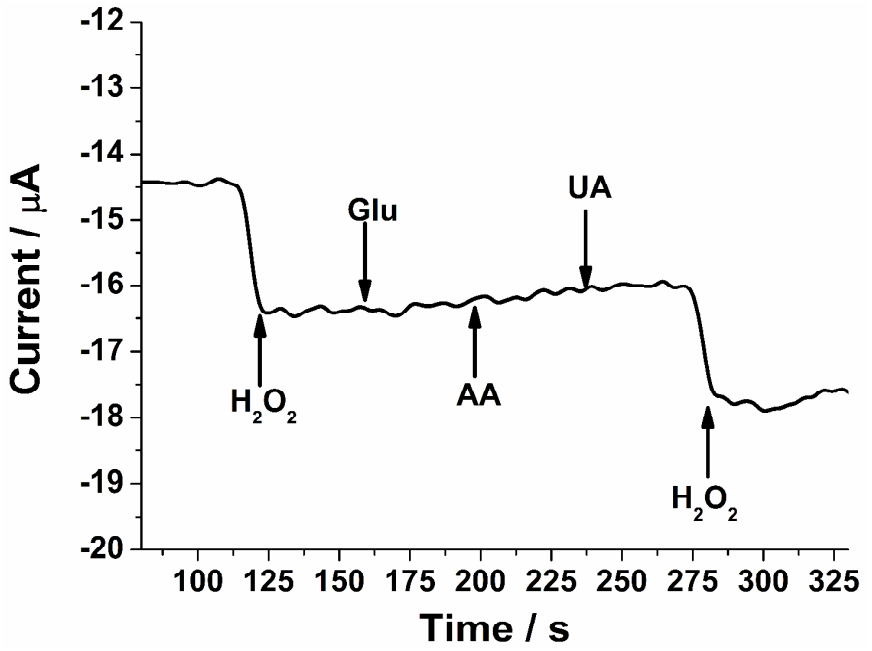

Figure S9. Anti-interference test via chronoamperometry by adding 50 μM glucose (Glu), 5 μM AA, 5 μM UA and 5 μM H_2O_2 in 0.1 M PBS (pH = 7.0) under stirring.

Table S1 Comparison of different electrodes for H_2O_2 determination.

Catalyst	Linear range (mM)	Sensitivity ($\mu A\ mM^{-1}\ cm^{-2}$)	LOD (μM)	Reference
PtPd/MWCNT	2.0×10^{-3}-0.125	414.8	1.2	1
Pd/PEDOT	2.5×10^{-3}–1.0	215.3	2.84	3
Pd/mesoporous carbon nanospheres	7.5×10^{-3}–10	307.5	1	6
PtPd/graphite	0-0.5	1443.7	-	7
Pd/Au nanowire	0-2	530	5	33
NG-hAu1Pd4	1×10^{-4}-0.02	5095.5	0.02	This work