Electronic Supplementary Information

One-step electrodeposition of molecularly imprinting chitosan/phenyltrimethoxysilane/AuNPs hybrid film and the application in selective determination of *p*-nitrophenol

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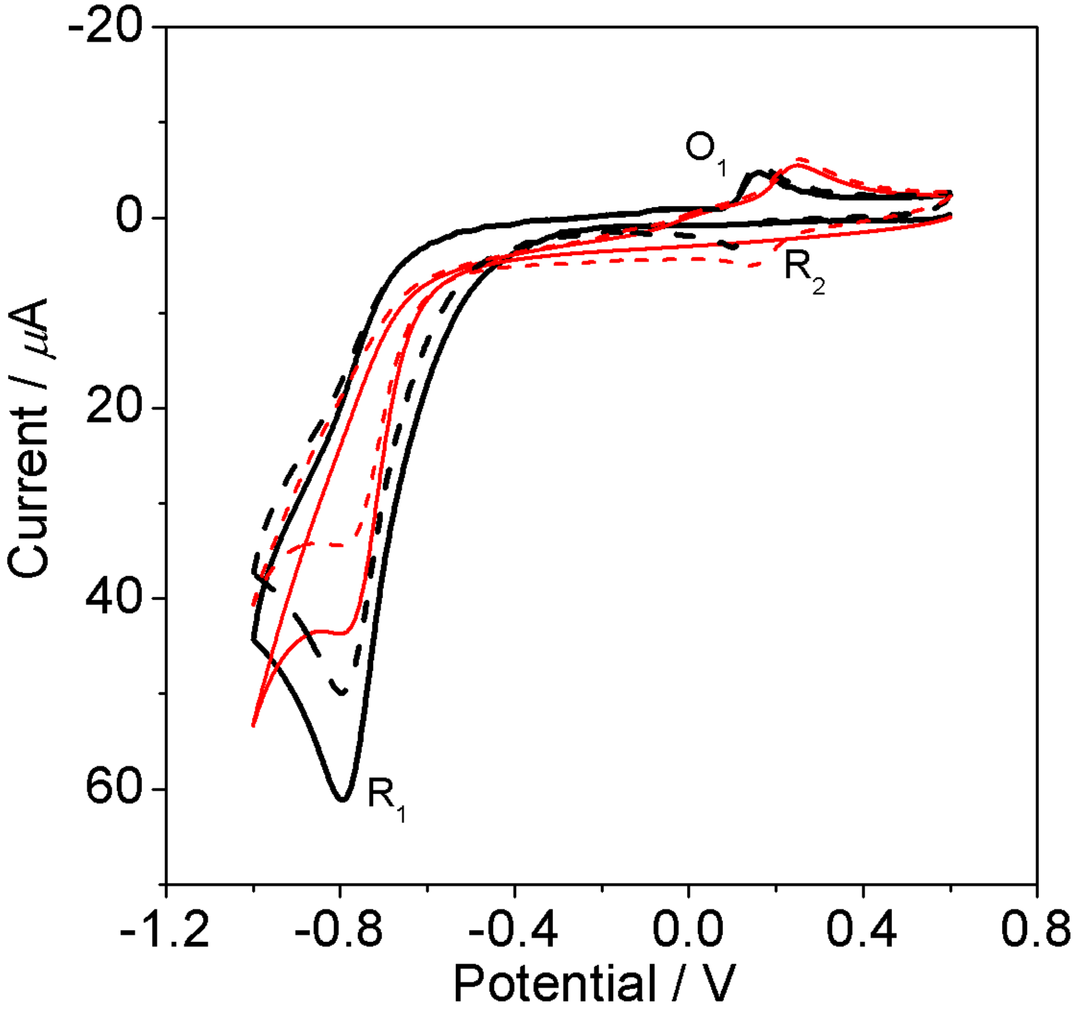

Fig. S1. Qualitative cyclic voltammetric behaviors of *p*-NP measured by the *p*-NP imprinting hybrid film coated GCE in fresh acetate buffer (black lines) and by the bare GCE (read lines) in *p*-NP containing acetate buffer solution. The solid lines are first cycle and the dotted lines the second cycle, respectively. The potential cycling range was between +0.60 to -1.00 V *vs*. SCE with a scan rate of 100 mV s^{-1}.

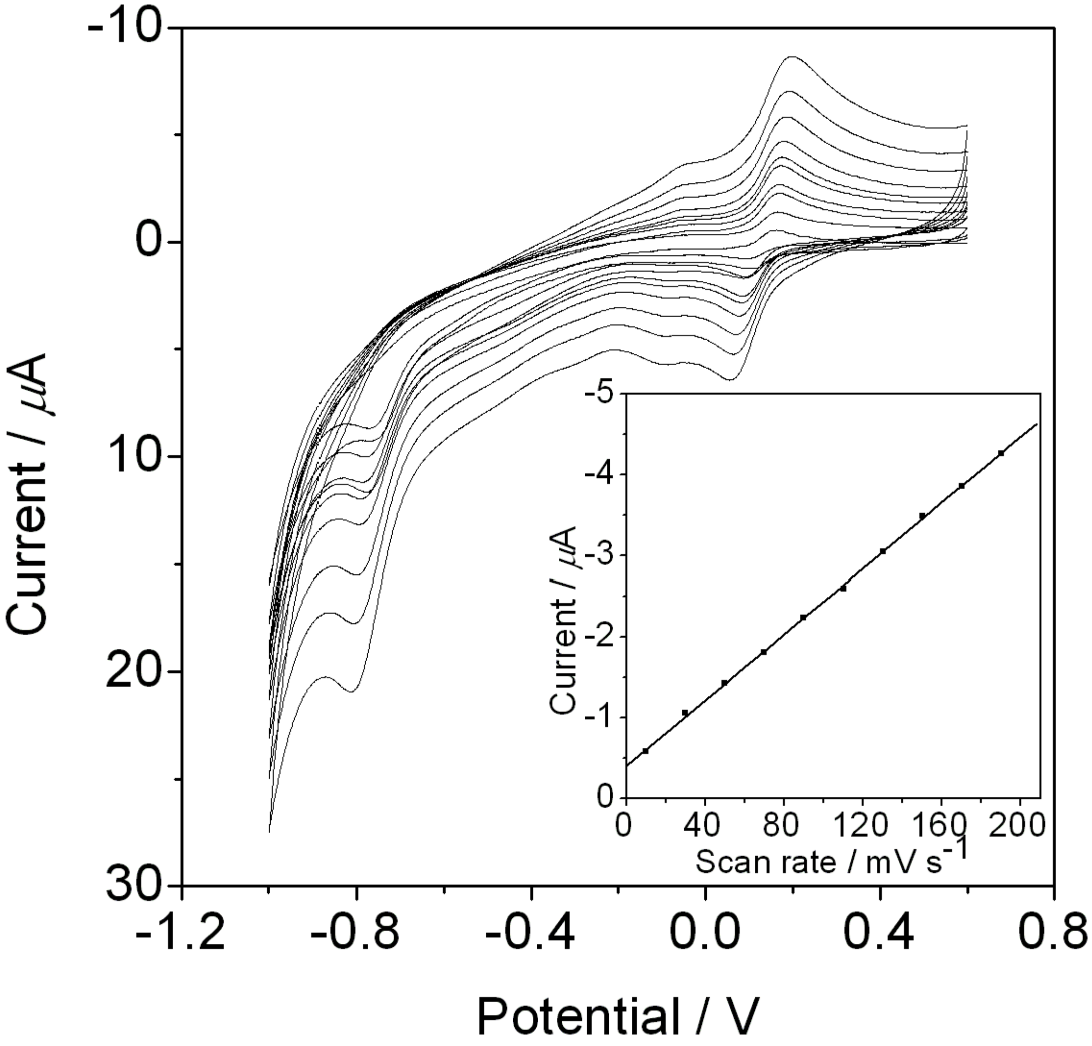

Fig. S2. Cyclic voltammograms of the imprinted CS/PTMS/AuNPs/GCE in acetate buffer solution at different scan rates (scan rate range: 5-200 mV s^{-1}) after incubating in 50 μM *p*-NP for 10 min. Inset: linear relationship between oxidation peak currents and scan rates (i_p (μA) = -0.02032ν (mV s^{-1}) - 0.40595, R=0.9998).

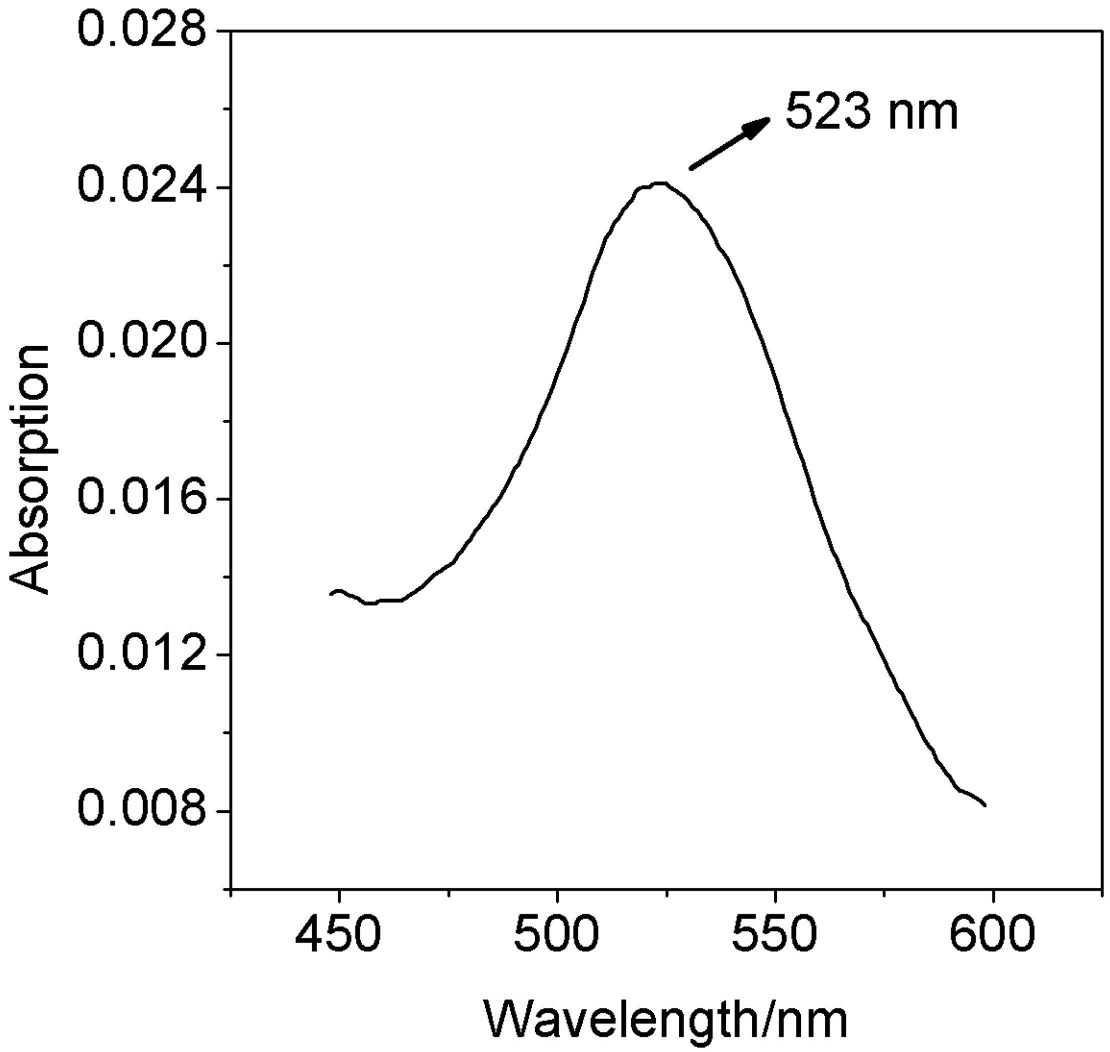

Fig. S3. UV-vis absorption spectrum of the CS/PTMS/AuNPs hybrid film coated ITO. The maximum absorption wavelength is 523 nm, indicating the existence of small AuNPs formed *in situ* with uniform distribution in the hybrid film.

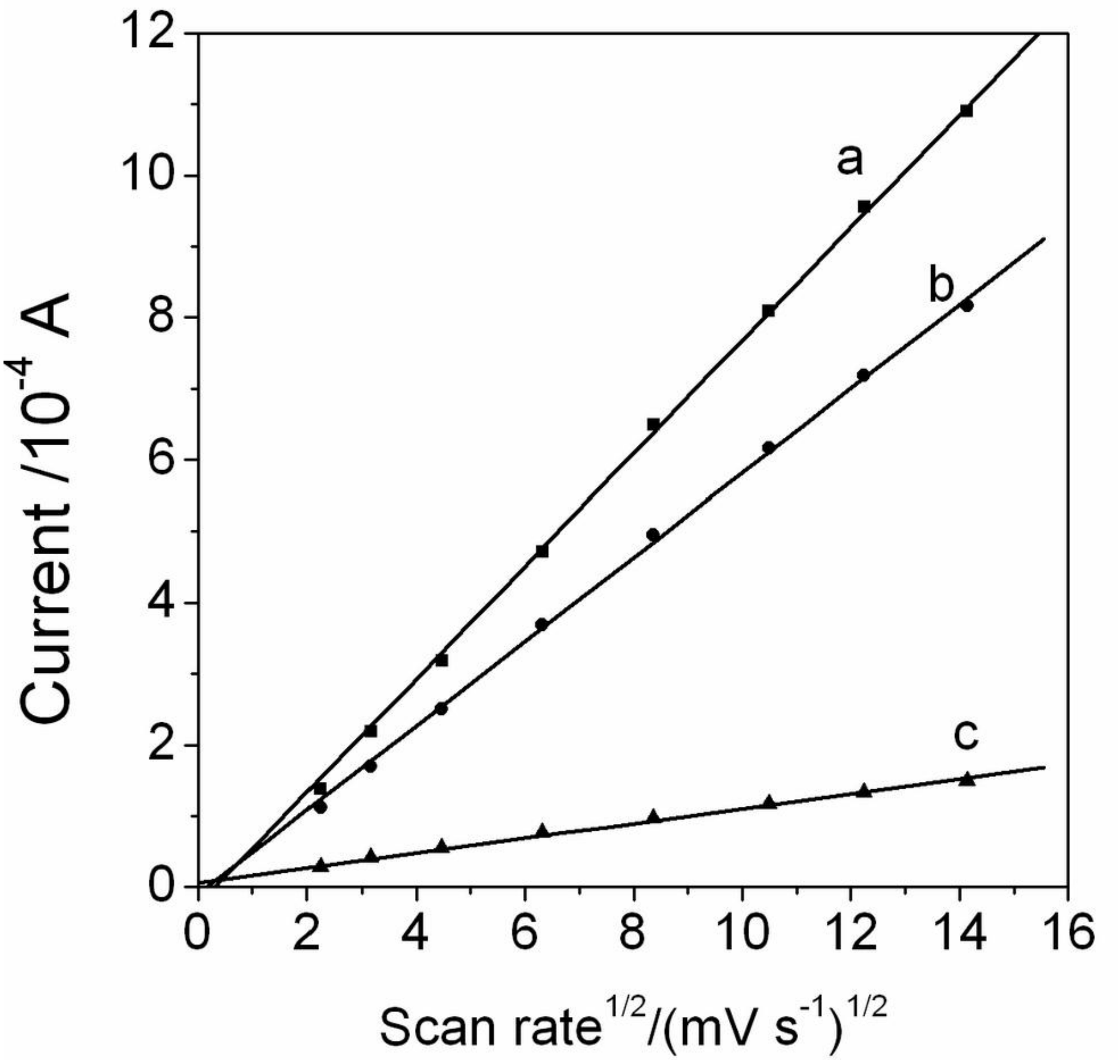

Fig. S4. Linear relationships between peak current and the square root of scan rate measured in 5 mM $K_3Fe(CN)_6$/ $K_4Fe(CN)_6$ solution: (a) imprinted CS/PTMS/AuNPs/GCE; (b) non-imprinted CS/PTMS/AuNPs/GCE; and (c) bare GCE. The electrochemical areas were calculated to be (a) 0.71 cm^2, (b) 0.53 cm^2 and (c) 0.09 cm^2, respectively, by taking the slops of the lines into the Randles-Sevcik expression: $i_p = 2.69\times10^5\ n^{3/2}AD_0^{1/2}C_0\ \nu^{1/2}$ (Here, $n = 1$, $D_0 = 7.6\times10^{-6}$ cm^2 s^{-1}, $C_0 = 5.0\times10^{-6}$ mol cm^{-3}).

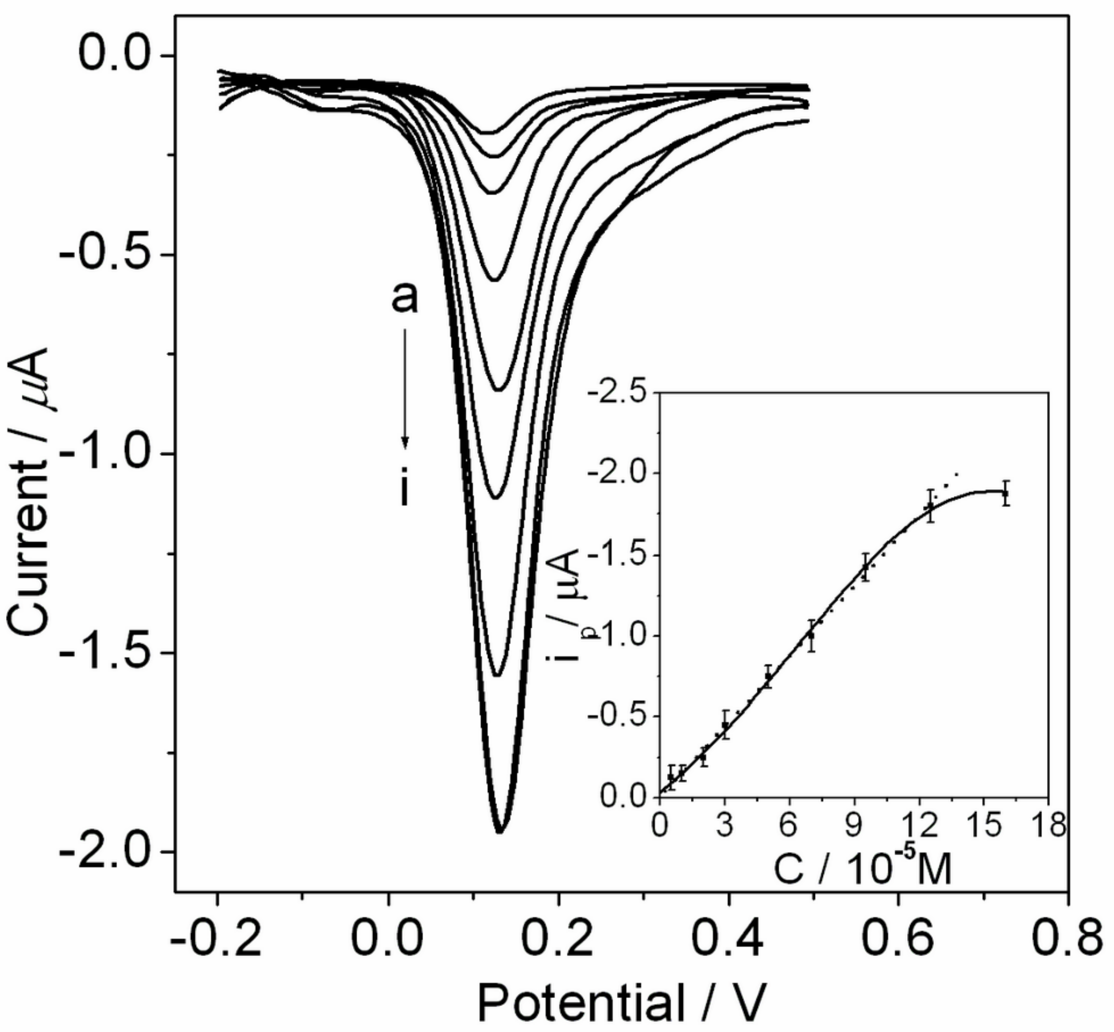

Fig. S5. DPV responses of *p*-NP rebound to the non-imprinted CS/PTMS/AuNPs/GCE in fresh acetate buffer after incubating in acetate buffer solution containing increasing *p*-NP concentrations (curves a–i: 5-160 μM) for 10 min and subsequent reduction by maintaining the constant potential at -1.00 V for 300 s.. Inset: calibration curve and fitting dot-line.

Table 1 The relative deviation percentages of DPV responses of *p*-NP in the presence of different interferences in varying molar ratios.

***p*-NP/interference ratio**	**relative response deviation***		
	***o*-NP**	***m*-NP**	**2,3-diF-*o*-NP**
1:1	±0.7%	±1.2%	±0.3%
1:10	±1.1%	±1.4%	±0.8%
1:50	±2.3%	±3.7%	±1.4%
1:100	±5.5%	±7.4%	±4.7%

* The responses of *p*-NP rebound to the CS/PTMS/AuNPs/GCE sensor were measured at the characteristic oxidation potential of reduced *p*-NP in fresh acetate buffer after incubating the sensor in acetate solutions containing 50 μM *p*-NP and different interferences in varying molar ratios for 10 min.