

## Supplementary Material

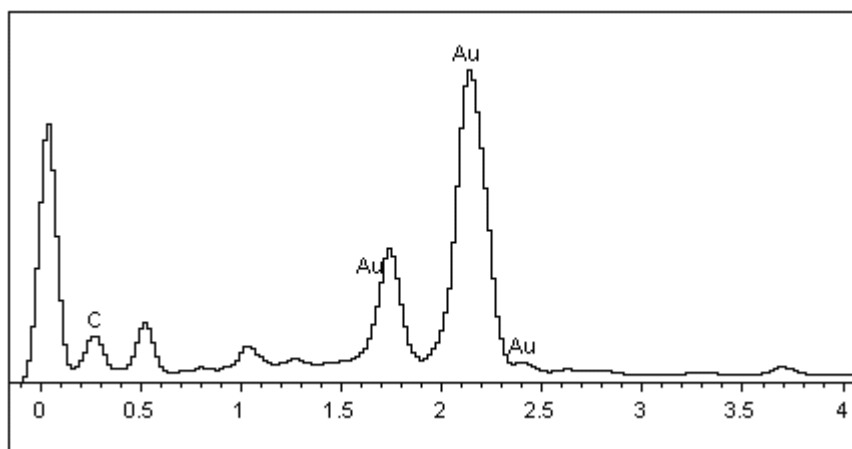


Fig. S1. EDX analysis elemental composition of AuNPs/PANI/pDA hybrid composite.

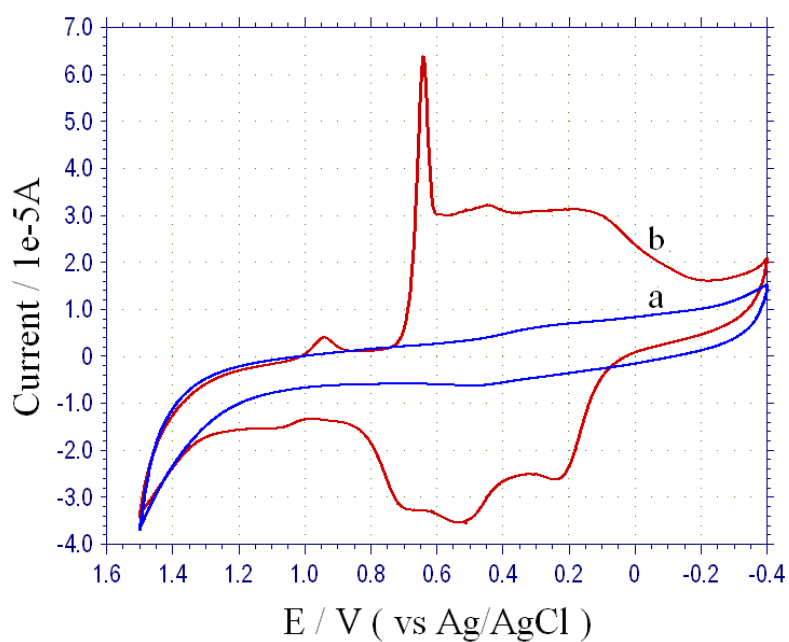


Fig. S2. CVs of the bare GCE (a) and AuNPs/PANI/pDA/GCE (b) in 0.1 M  $H_2SO_4$  solution at a scan rate of  $100 \text{ mV s}^{-1}$ .

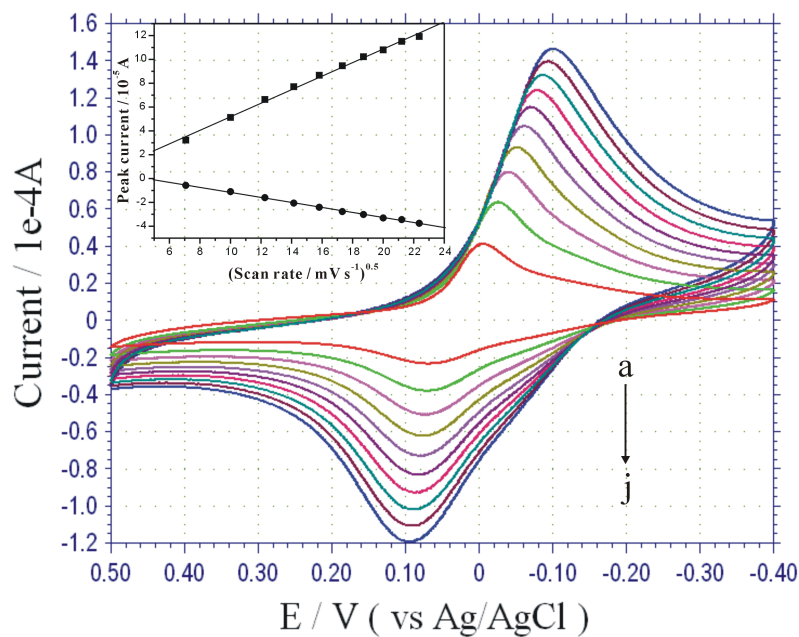


Fig. S3. CVs of the AuNPs/PANI/pDA/GCE in 0.1 M PBS (pH 7.0) at different scan rates of (a) 50, (b) 100, (c) 150, (d) 200, (e) 250, (f) 300, (g) 350, (h) 400, (i) 450, and (j) 500  $\text{mV s}^{-1}$ . Inset shows the plots of peak current versus the square foot of the scan rate.

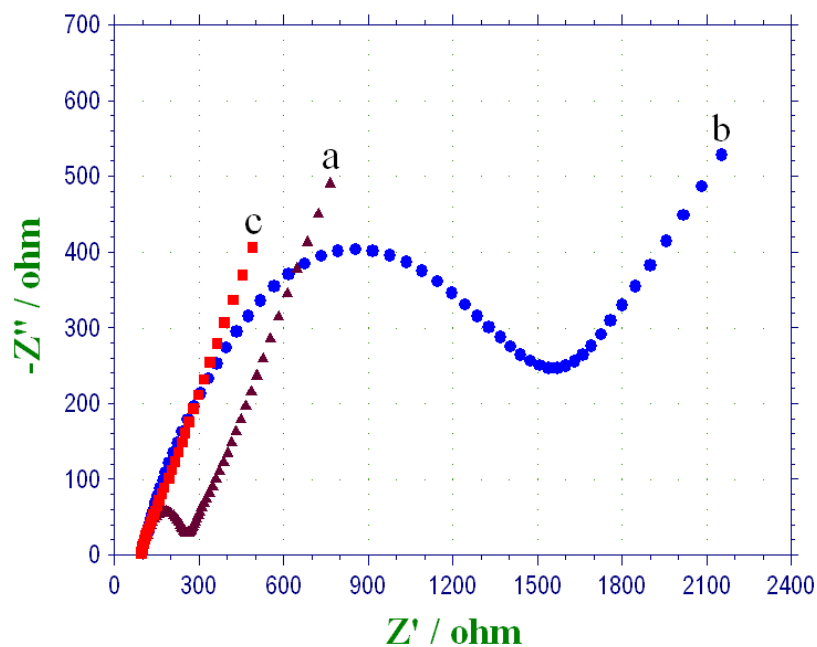


Fig. S4. EIS for (a) the bare GCE, (b) pDA/GCE, and (c) AuNPs/PANI/pDA/GCE in a solution of 0.1 M KCl containing 5 mM  $\text{Fe}(\text{CN})_6^{3-}$  and 5 mM  $\text{Fe}(\text{CN})_6^{4-}$ .