

Supplementary Information

In situ synthesis of gold nanoparticles on porous polyacrylonitrile nanofibers for sensing application

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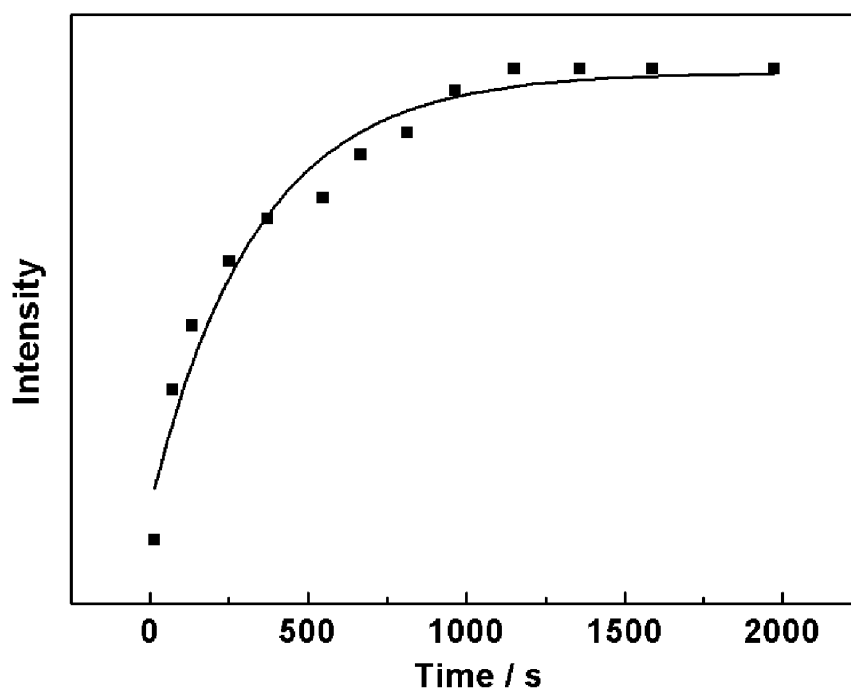


Fig. S1 Effect of immersing time of AuNPs/PAN nanofiber membrane in 0.50 mM Ru(bpy)₃²⁺ solution on the ECL intensity of Ru(bpy)₃²⁺/AuNPs/PAN GC electrode.

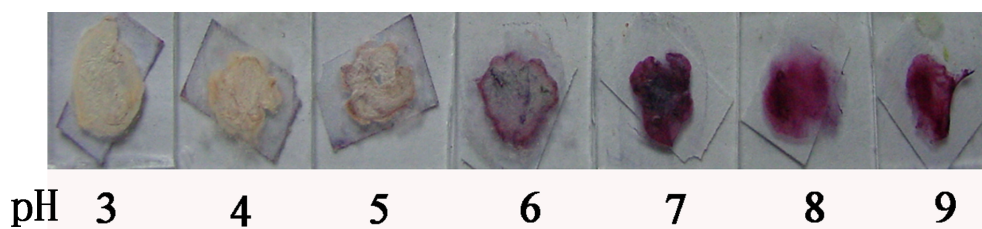


Fig. S2 Effect of pH on the formation of AuNPs on PAN nanofibers. The AuNPs/PAN nanofiber membranes were prepared from various pH of 0.40 mg/mL HAuCl₄ solutions at 80 °C for 4 h.

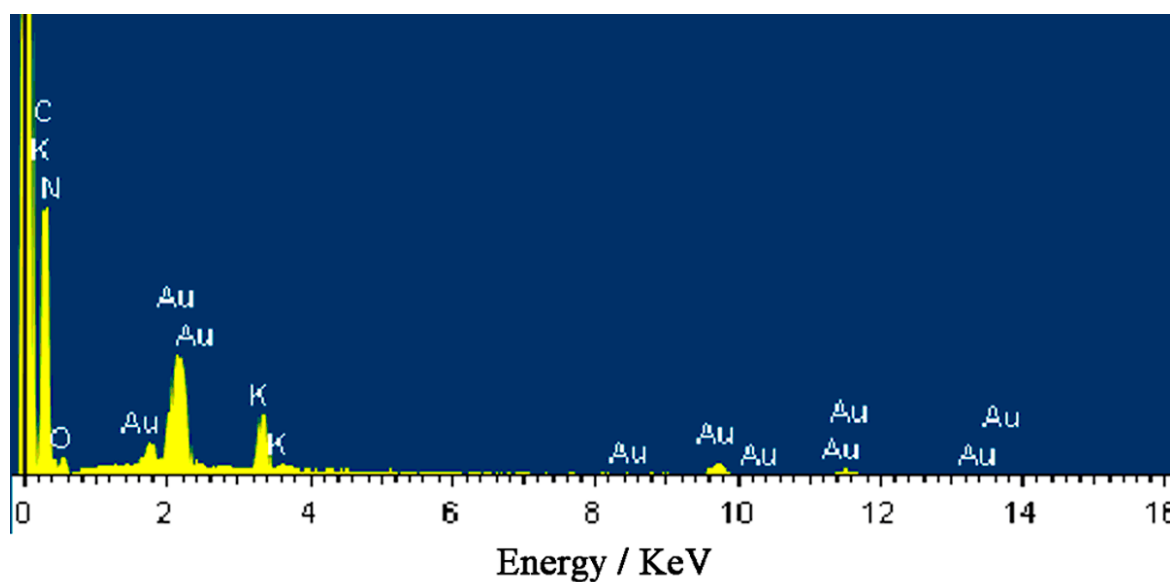


Fig. S3 EDS spectrum of AuNPs/PAN nanofiber membrane. The AuNPs/PAN nanofibers were prepared from 0.40 mg/mL HAuCl₄ (pH 7.0) at 80 °C for 4 h.

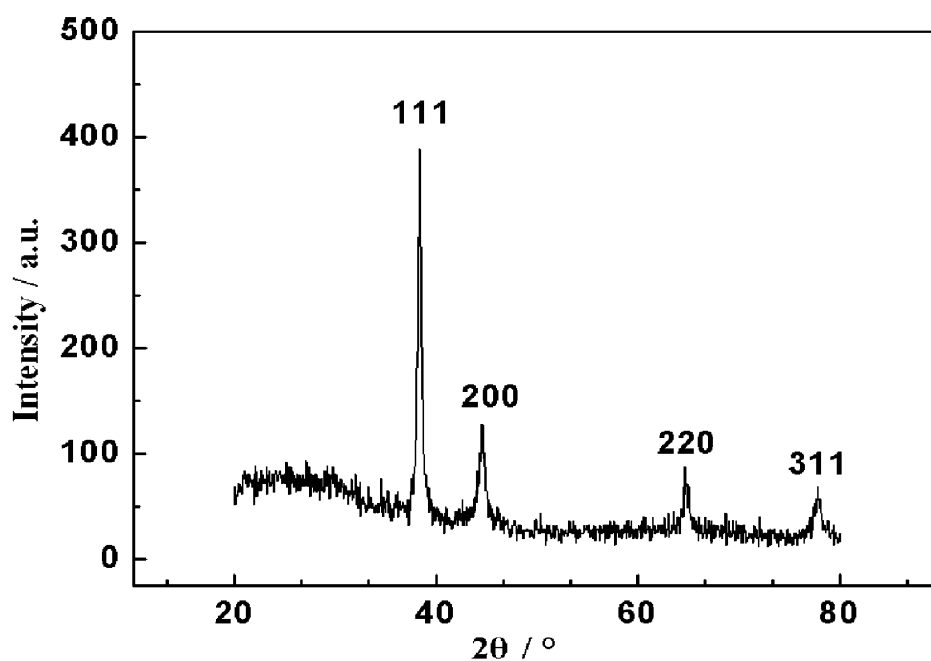


Fig. S4 XRD pattern of AuNPs on PAN nanofiber membrane. The AuNPs/PAN nanofibers were prepared from 0.40 mg/mL HAuCl₄ (pH 7.0) at 80 °C for 4 h.

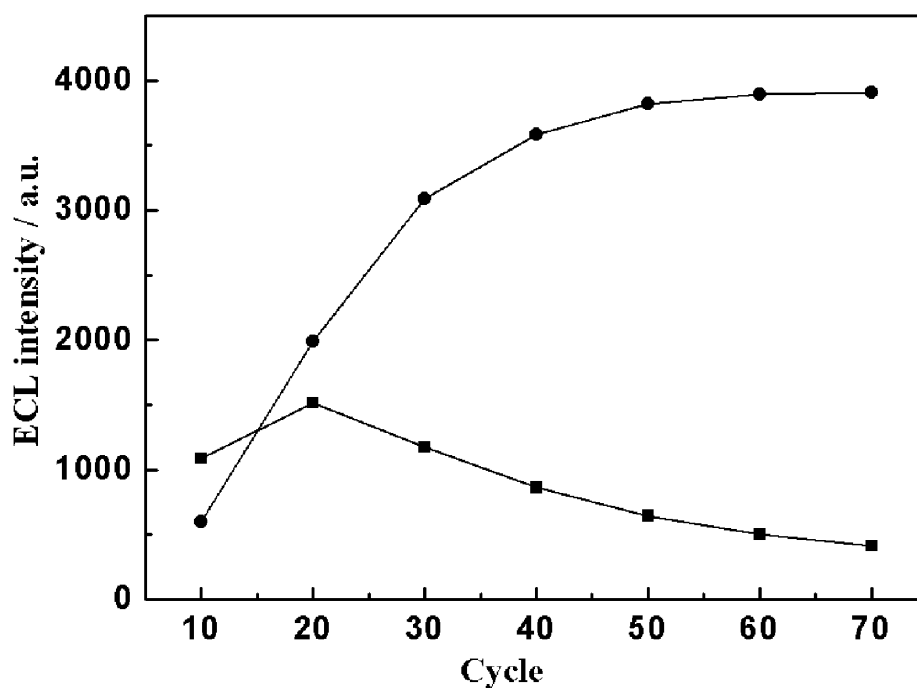


Fig. S5 ECL intensity-cycle curves of Ru(bpy)₃²⁺/PAN/GC electrode (■) and Ru(bpy)₃²⁺/AuNPs/PAN/GC electrode (●) in 5.0 mM TPrA solution (0.05 M PBS, pH 8.0). The scan rates are 0.30 V/s and interval times are 30 s.

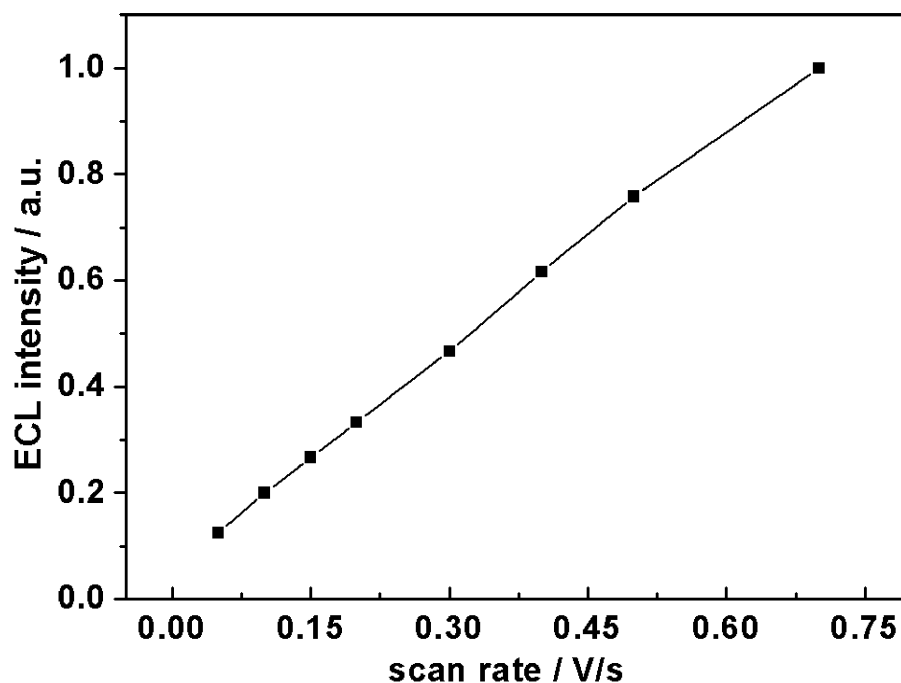


Fig. S6 Effect of CV scan rate on ECL intensity of Ru(bpy)₃²⁺/PAN/GC electrode in 5.0 mM TPrA solution (0.05 M PBS, pH 8.0). The interval time is 30 s. The ECL intensity is normalized at the scan rate of 0.70 V/s.

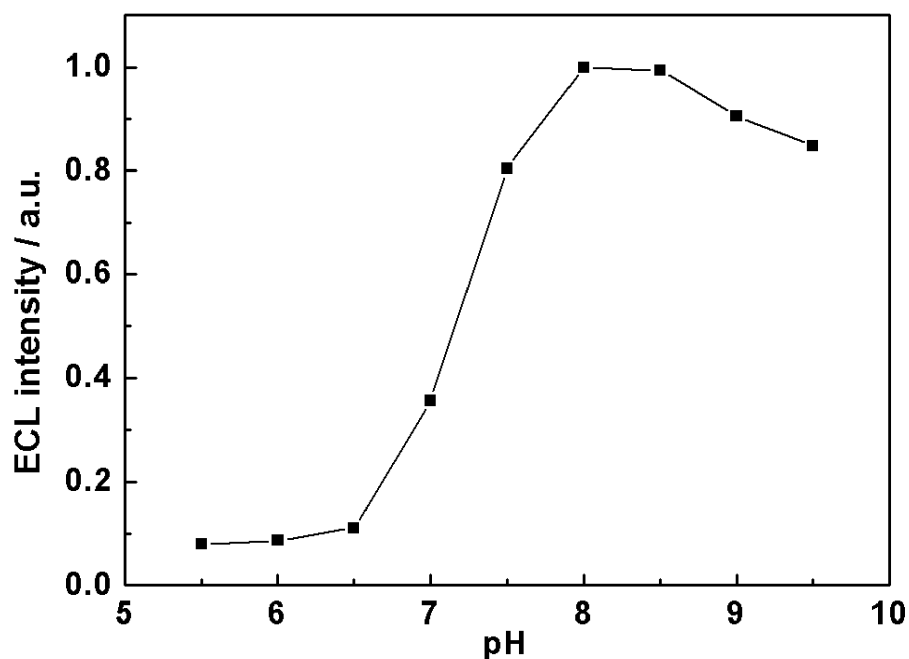


Fig. S7 Effect of pH on ECL intensity of $\text{Ru}(\text{bpy})_3^{2+}/\text{PAN}/\text{GC}$ electrode in 5.0 mM TPrA solution (0.05 M PBS). The scan rate is 0.30 V/s and the interval time is 30 s. The ECL intensity is normalized at pH 8.0.

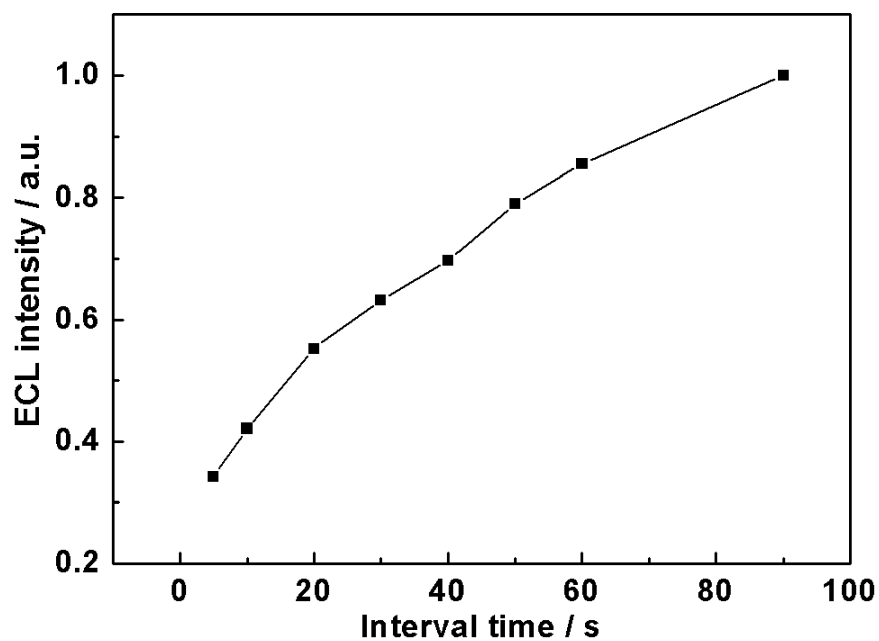


Fig. S8 Effect of interval time on ECL intensity of $\text{Ru}(\text{bpy})_3^{2+}/\text{PAN}/\text{GC}$ electrode in 5.0 mM TPrA solution (0.05 M PBS, pH 8.0). The scan rate is 0.30 V/s. The ECL intensity is normalized at the interval time of 90 s.

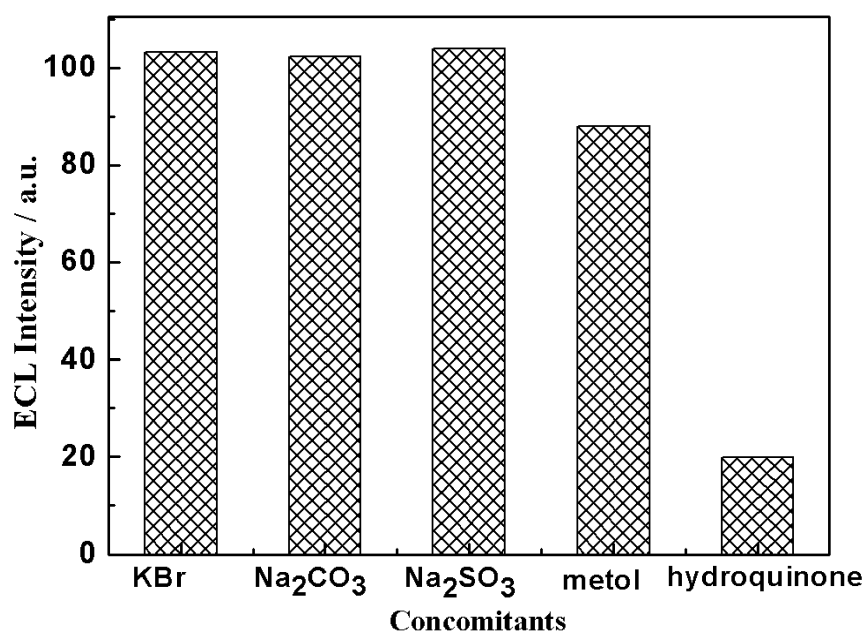


Fig. S9 Effect of concomitants in photographic developer on the ECL intensity. The concentrations of hydroquinone and concomitants are 50 μ M.