

Supporting Information

Electrochemiluminescence Resonance Energy Transfer between Luminol and Black Phosphorus Nanosheets for Detection of Trypsin via “off-on-off” Switch System

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EXPERIMENTAL SECTION

Preparation of BPNs

5 mg of BP powder was added into 1 mL of double-distilled water in a mortar and then ground for 20 min. The mixture was transferred to a glass vial containing 3 mL of double-distilled water. After being sealed carefully, the solution was sonicated in an ice-bath for 8 h at a power of 100 W. The final solution was centrifuged at 7000 rpm for 20 min, and then centrifuged at 11000 rpm for another 20 min. The top 75% of the solution was collected as the sample of BPNs.

RESULTS AND DISCUSSION

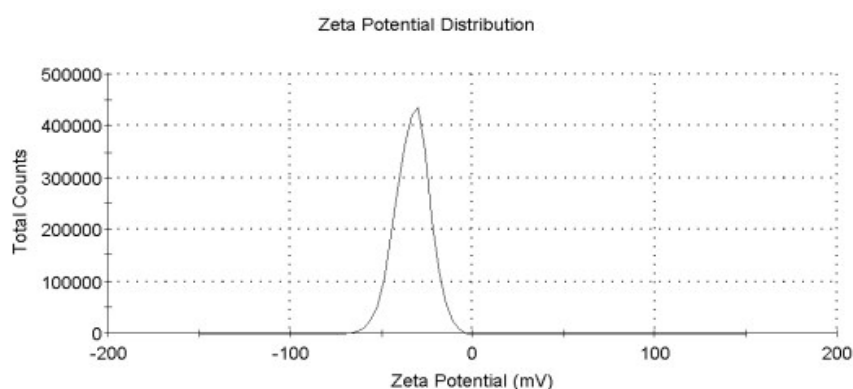


Fig.S1 The Zeta potential of BPNs

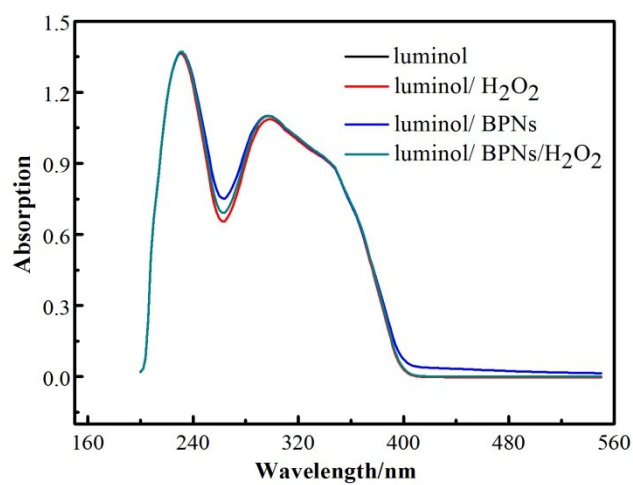


Fig.S2 UV-vis absorption spectrum of luminol, luminol/H₂O₂, luminol/BPNs and the luminol/BPNs/H₂O₂ mixing solutions.

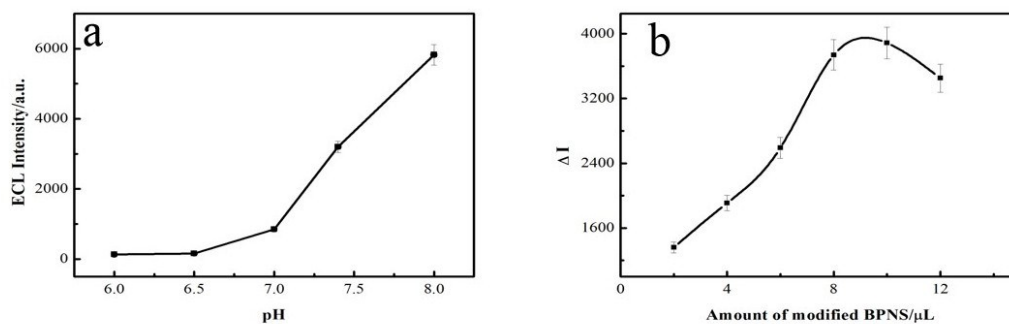


Fig.S3 (A) Effect of the pH value on ECL intensity. (B) Effect of the modification amount of BPNs on ECL intensity. (C) Effect of the concentration of protamine on ECL intensity.(D) Effect of the incubation time on ECL intensity.

Table S1. Comparison of different methods for determination of trypsin.

Methods	Linear range ($\mu\text{g/mL}$)	Detection limit ($\mu\text{g/mL}$)	Reference
Colorimetry	0.9-1000	0.6	1
FL	0.5-20	0.13	2
FL	0-6	0.7	3
FL	0.1-4	0.04	4

Electrochemistry	0.5-100	0.5	5
ECL	1×10^{-3} -1.5 U /mL	8.4×10^{-4} U/mL	6
ECL	0.1-5	0.06	This paper

References

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