Supplementary Material

Antenna effect enhanced ECL immunoassay using microfloral europium porphyrin coordination polymers based on Eu^{3+} and TCPP for the detection of chloramphenicol in foods

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Buffer solution

Phosphate-buffered saline stock solution (PBS, pH = 7.4, 0.1 mol L^{-1}) was prepared by KCl (0.1 mol L^{-1}), NaCl (0.1 mol L^{-1}), Na_2HPO_4 (6.4 mmol L^{-1}) and KH_2PO_4 (1.0 mmol L^{-1}). ECL detection buffer was prepared by PBS containing 0.1 mol L^{-1} $K_2S_2O_8$. The solution to activate bare GCE was prepared by 5.0 mmol L^{-1} $K_3[Fe(CN)_6]$, 5.0 mmol L^{-1} $K_4[Fe(CN)_6]$ and 0.1 mol L^{-1} KCl. All aqueous solutions were prepared with sub-boiling doubly distilled water.

Preparation of SnS_2 NSs

SnS_2 NSs were synthesized with reference to existing methods and with some modifications.[1] Add 0.35 g $SnCl_4 \cdot 5H_2O$ into 30 mL of DI water to form a transparent solution under magnetic stirring, then add 0.4 g thiourea and stir well. Subsequently, the solution was transferred into a 50 mL autoclave and maintained at 180 °C for 24 h. After the reaction, the precipitate was centrifuged and washed three times each with deionized water and ethanol. Eventually, the product was dried under vacuum at 60 °C overnight to obtain a yellow powder for future use.

Characterization of Eu-PCP

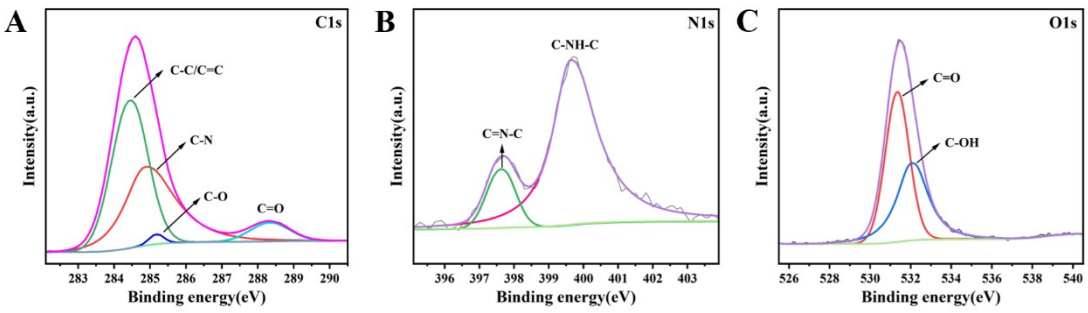


Fig. S1. High-resolution XPS spectra of Eu-PCP (**A**) C1s, (**B**) O1s and (**C**) N1s.

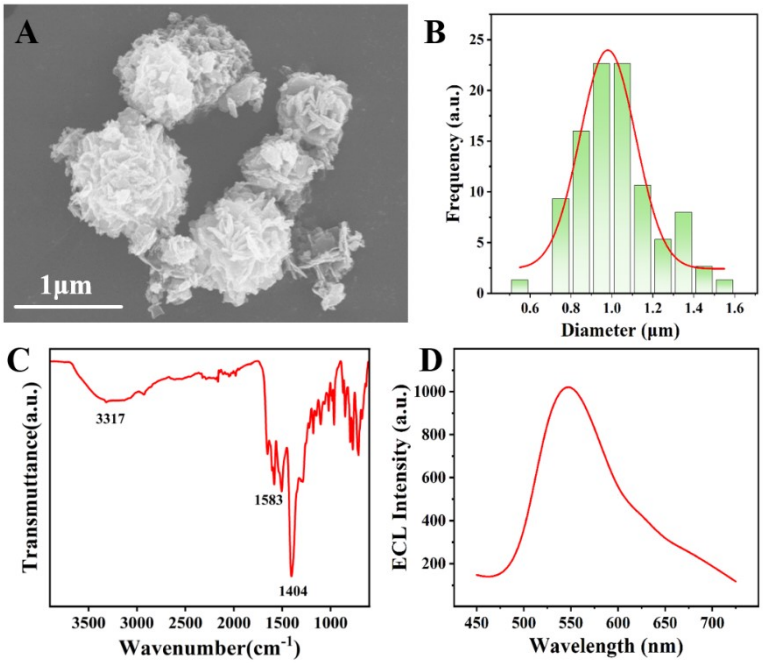


Fig. S2. SEM image of Eu-PCP (**A**). DLS test result for Eu-PCP (**B**). FT-IR spectrum of Eu-PCP (**C**). ECL emission spectrum of Eu-PCP (**D**).

Characterization of Au@SnS_2

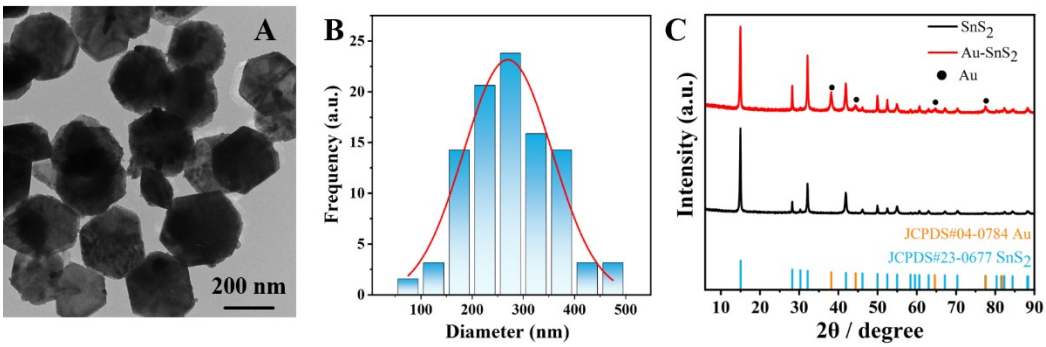


Fig. S3. TEM image of SnS_2 NSs (**A**). DLS test result for SnS_2 NSs (**B**). XRD pattern of Au@SnS_2 NSs (**C**).

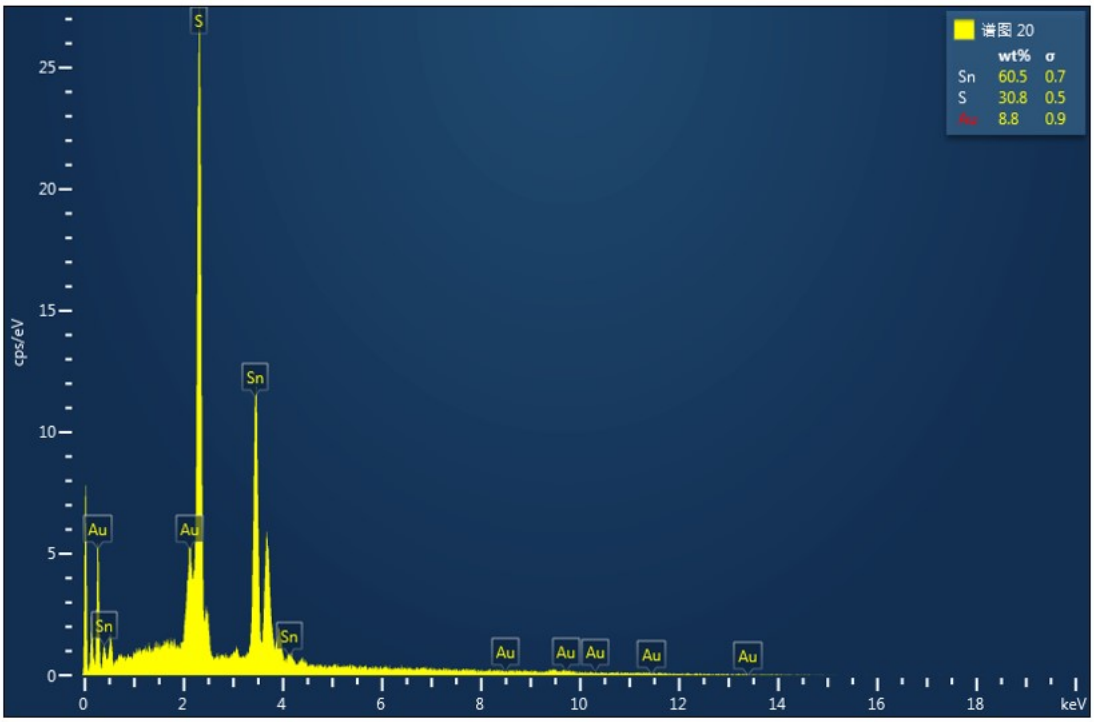


Fig. S4. EDS spectrum of Au@SnS_2 NSs.

Characterization of Zn-PCP, Cu-PCP, Fe-PCP

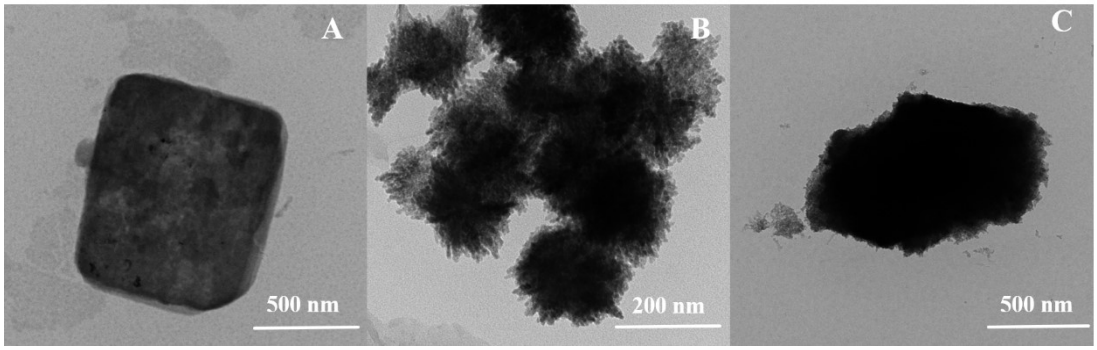
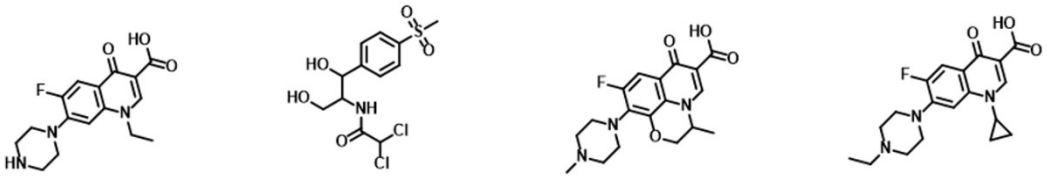


Fig. S5. TEM image of Zn-PCP (**A**), Cu-PCP (**B**), Fe-PCP (**C**).

Molecular structural formulae



Norfloxacin Thiamphenicol Oxyfloxacin Enrofloxacin

Fig. S6. Molecular structural formulae of Norfloxacin, Thiamphenicol, Ofloxacin and Enrofloxacin

Reproducibility of five immunosensors

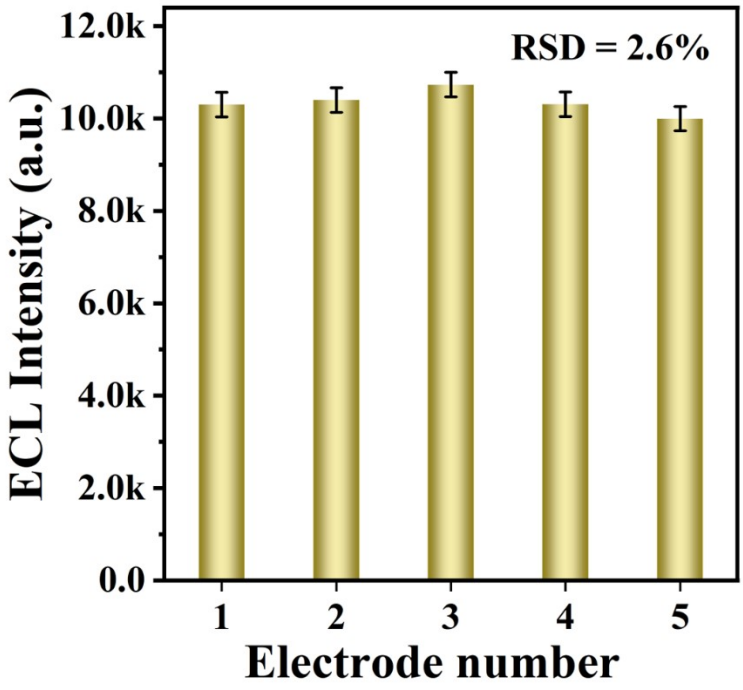


Fig. S7. Reproducibility of five immunosensors under the same conditions at a detector concentration of 0.01ng mL^{-1}.

Table S1

Table S1 Properties of comparable methods for the determination of CAP

Methods	LODs	Analytical ranges	References
HPLC-MS/MS	15.5 pg mL^{-1}	0.01 - 5 ng mL^{-1}	2
SERS	0.87 pg mL^{-1}	0.01 - 1000 ng mL^{-1}	3
ELISA	0.1 ng mL^{-1}	0.18 - 6.37 ng mL^{-1}	4
LFIA	3 ng mL^{-1}	0.1 - 1.5 ng mL^{-1}	5
ECLIA	3.1 pg mL^{-1}	0.01 - 100 ng mL^{-1}	6
ECLIA	0.09 pg mL^{-1}	0.0002 - 500 ng mL^{-1}	This work

References

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