

Supporting Information

A turn on fluorescent sensor based on lanthanide coordination polymer nanoparticles for the detection of mercury (II) in biological fluids

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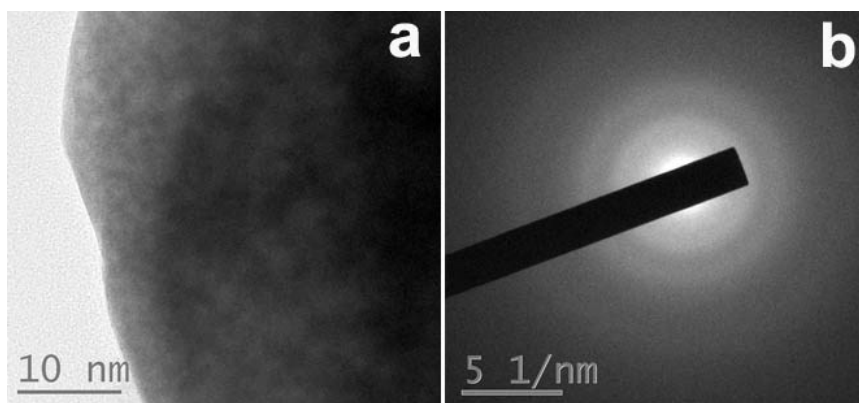


Figure S1. HR TEM image (a) and selected area electron diffraction (SAED) image of Eu/IPA CPNPs.

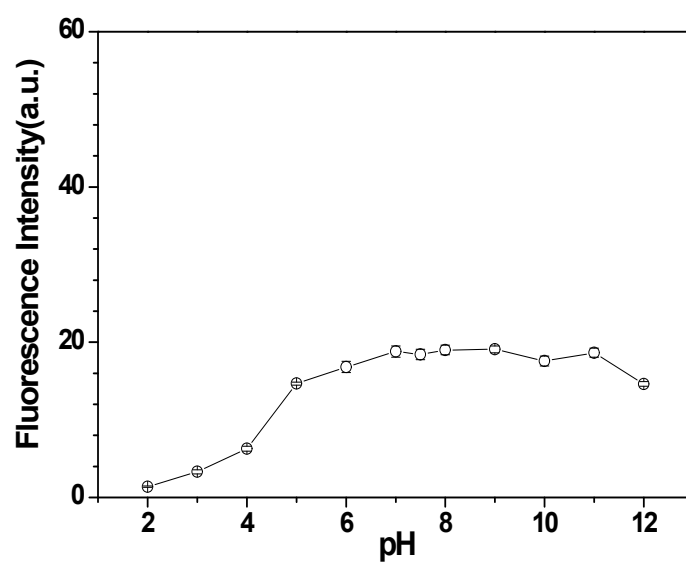


Figure S2. Changes of the fluorescence of 26.5 $\mu\text{g/mL}$ of Eu/IPA CPNPs in the presence of 320 μM of Im in the reaction media with different pH values.

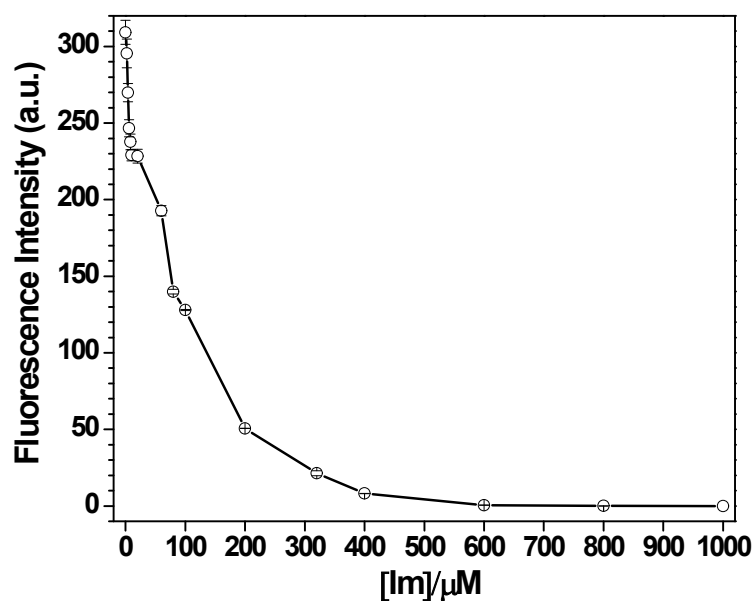


Figure S3. Fluorescence changes of Eu/IPA CPNPs in the presence of Im with different concentrations. The reactions were performed in Tris-HCl buffer (25 mM, pH 7.0) with 26.5 $\mu\text{g/mL}$ Eu/IPA CPNPs and Im with final concentration from 0 to 1000 μM at room temperature, the total volume is 100 μL .

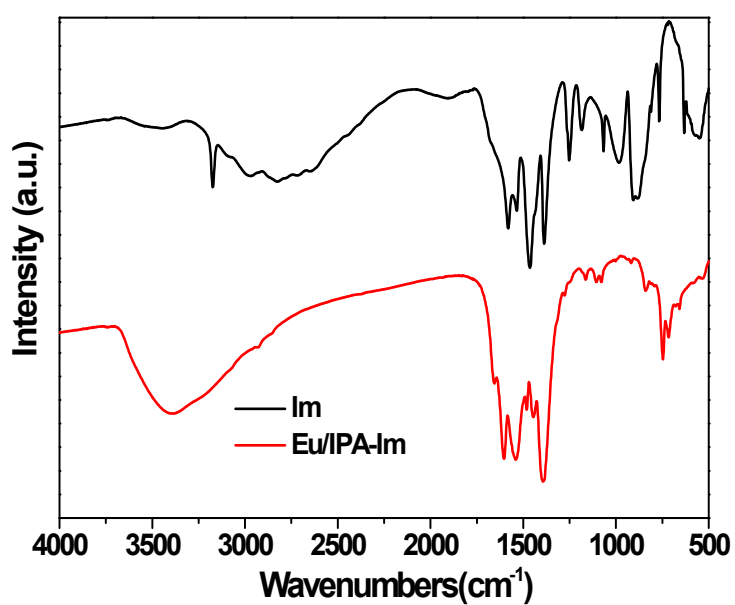


Figure S4. FTIR spectra of pure Im and Eu/IPA-Im complex.

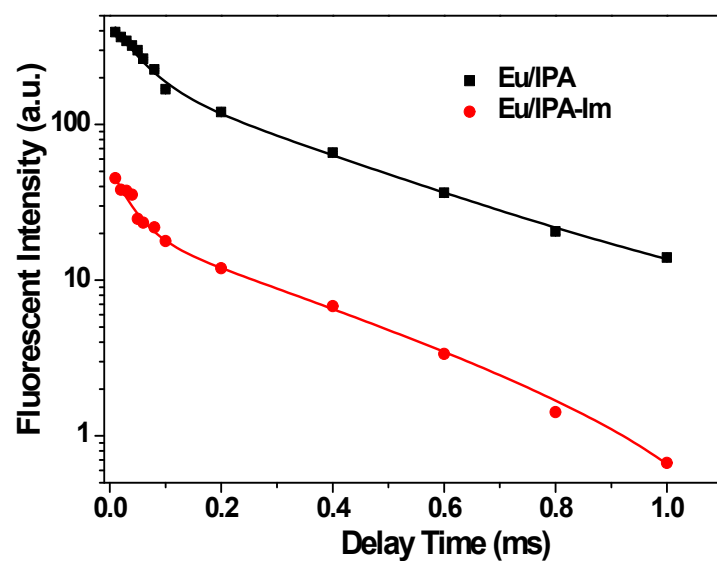


Figure S5. Emission lifetime of Eu/IPA CPNPs and Eu/IPA-Im complex in the absence and presence of $1.5 \mu\text{M Hg}^{2+}$.

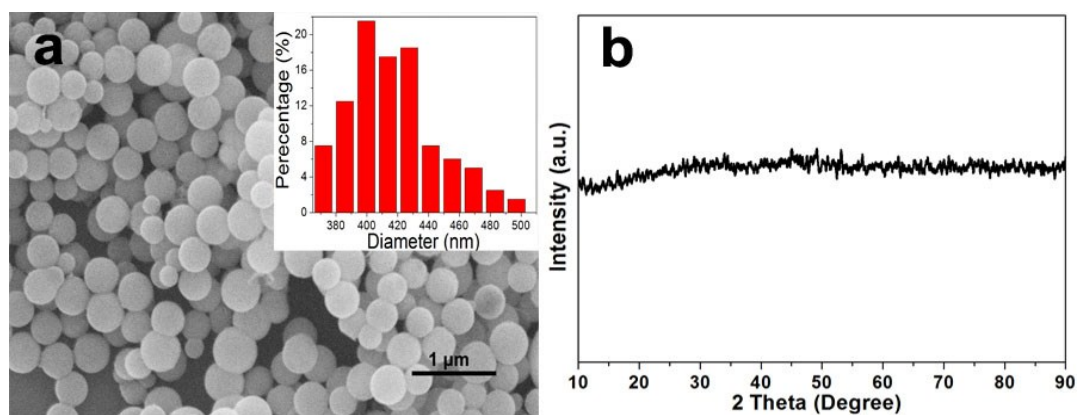


Figure S6. SEM (a) and XRD (b) of Eu/IPA CPNPs in the presence of Im. Inset is the size distribution of Eu/IPA-Im complex that were estimated from the particle diameter on the SEM images.

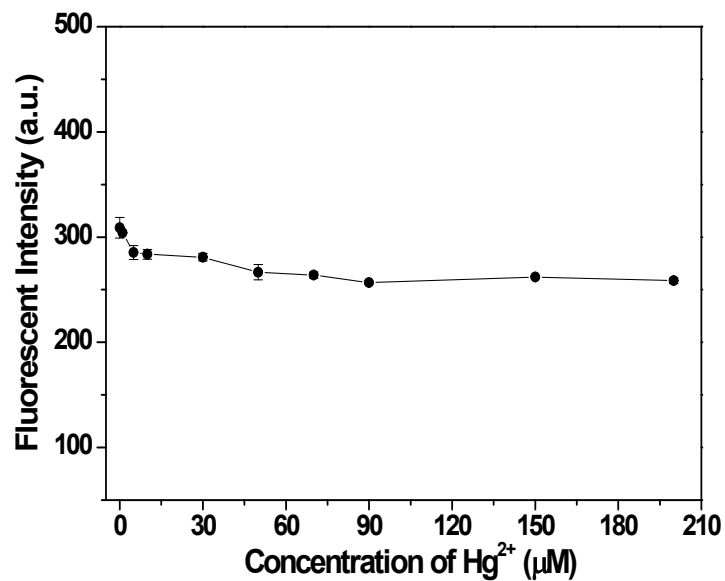


Figure S7. Effects of Hg^{2+} with different concentrations on the fluorescence of Eu/IPA CPNPs.

The reactions were performed in Tris-HCl buffer (25 mM, pH 7.0) with 26.5 $\mu\text{g/mL}$ Eu/IPA CPNPs and Hg^{2+} with final concentration from 0 to 200 μM at room temperature, the total volume is 100 μL .

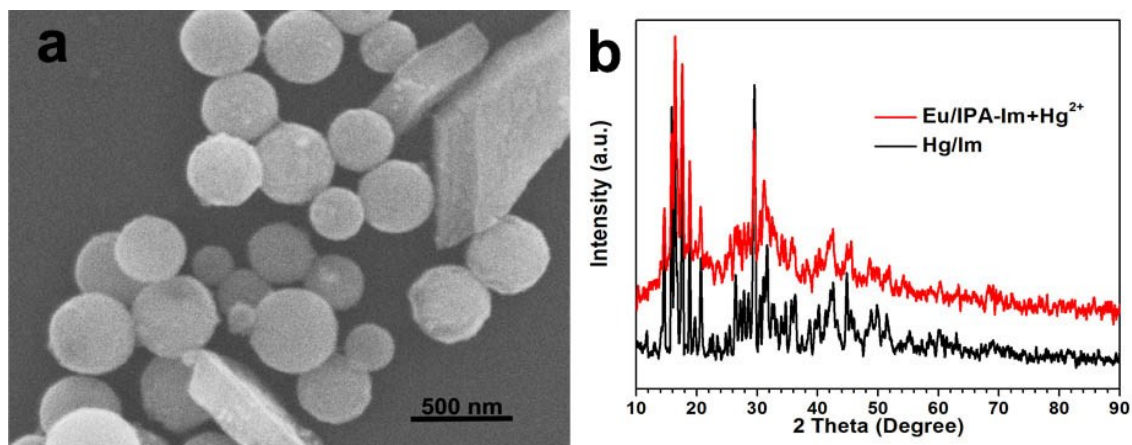


Figure S8. SEM image of Eu/IPA-Im complex in the presence of 100 μM Hg^{2+} (a) and XRD pattern of Eu/IPA-Im complex in the presence of 100 μM Hg^{2+} and pure Im/Hg complex (b).

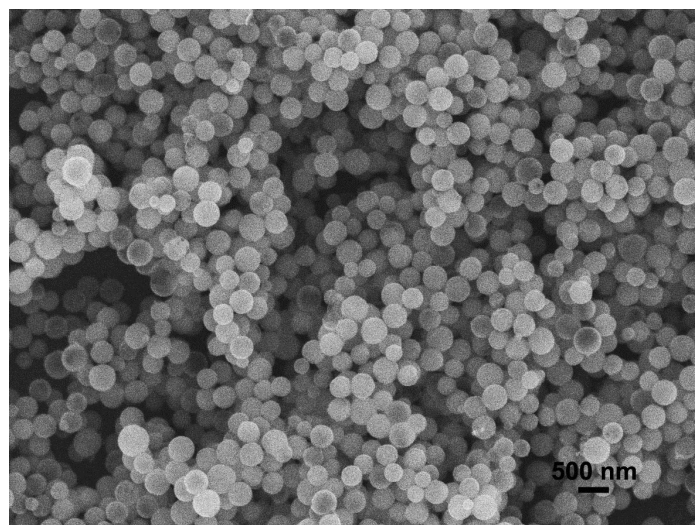


Figure S9. SEM image of CPNPs in the presence of Hg^{2+} (100 μM).

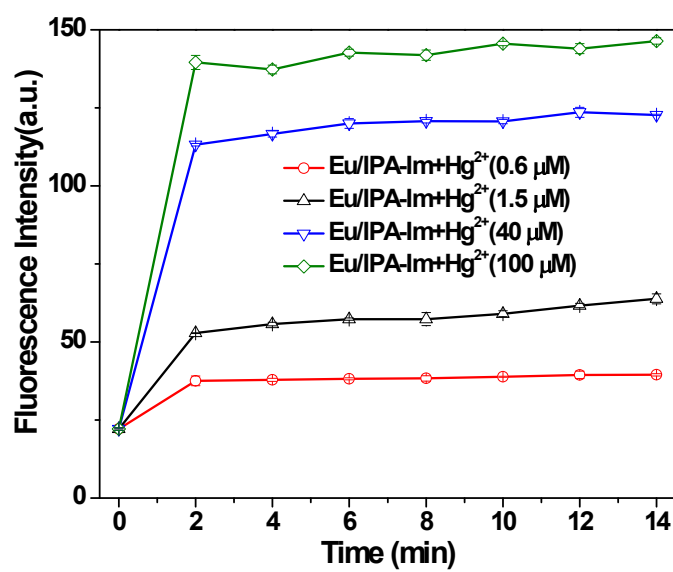


Figure S10. Time-dependent fluorescence changes of Eu/IPA-Im complex in the presence of Hg^{2+} with different concentrations (0.6, 1.5, 40, 100 μM).

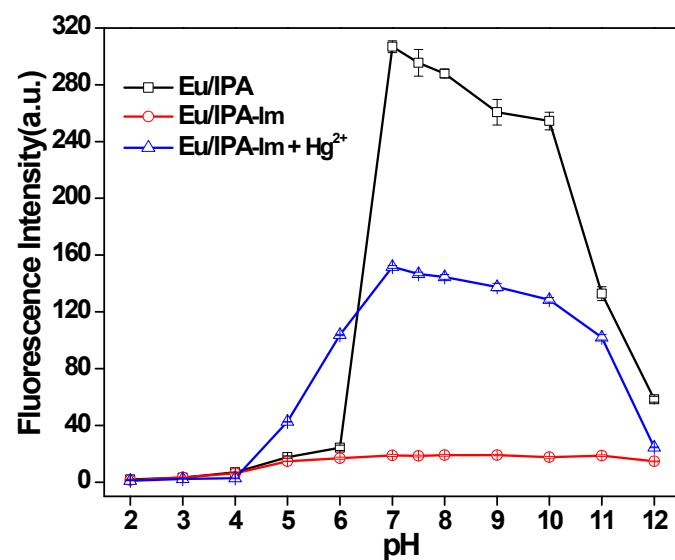


Figure S11. Effects of pH on the fluorescence of Eu/IPA CPNPs, Eu/IPA-Im complex in the absence and presence of 100 μM Hg²⁺.

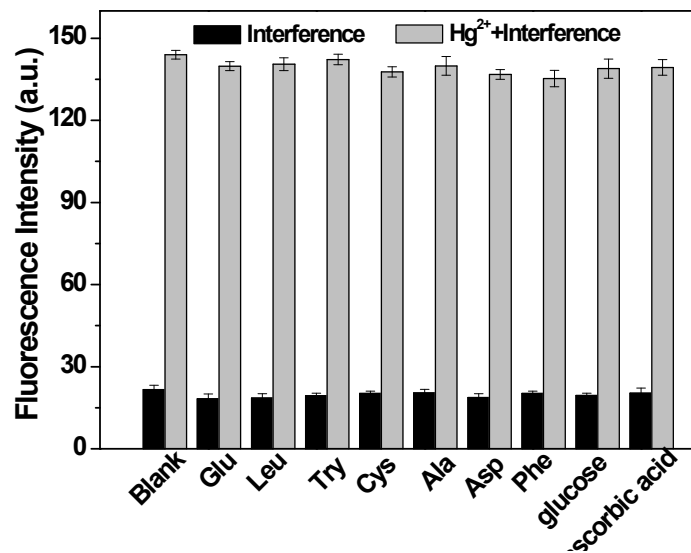


Figure S12. Effects of the interfering substances (each 100 μM) coexisted in urine on the fluorescence of Eu/IPA-Im complex.

Table S1. Determination of Hg²⁺ in urine samples

Samples	Founded (nM)	Added (nM)	Detected (nM)	RSD (% , n=3)	Recovery(%)
Urine-1	0	10	10.85 ± 0.71	3.16	108.5
Urine-2	0	200	196.05 ± 0.94	3.37	98.03
Urine-3	0	800	789.01 ± 1.33	3.81	98.63