Electronic Supplementary Material (ESI) for Analyst.

Electronic Supporting Information

Ratiometric Fluorescent Nanosensors for Ultra-sensitive Detection of Mercury ion based on AuNCs/ MOFs

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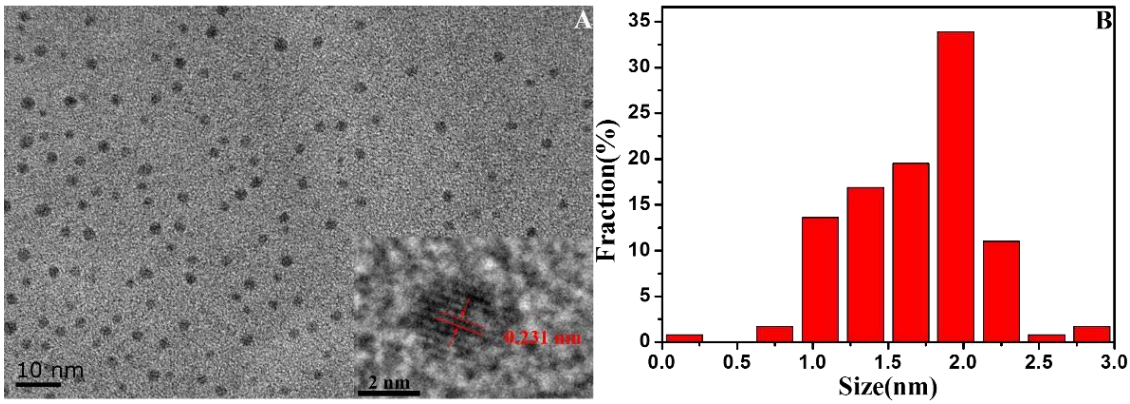

Figure S1. (A) TEM images of GSH-AuNCs (inset, HRTEM images of GSH-AuNCs, crystal lattice of a representative; scale bar, 2 nm) and (B) corresponding size distributions.

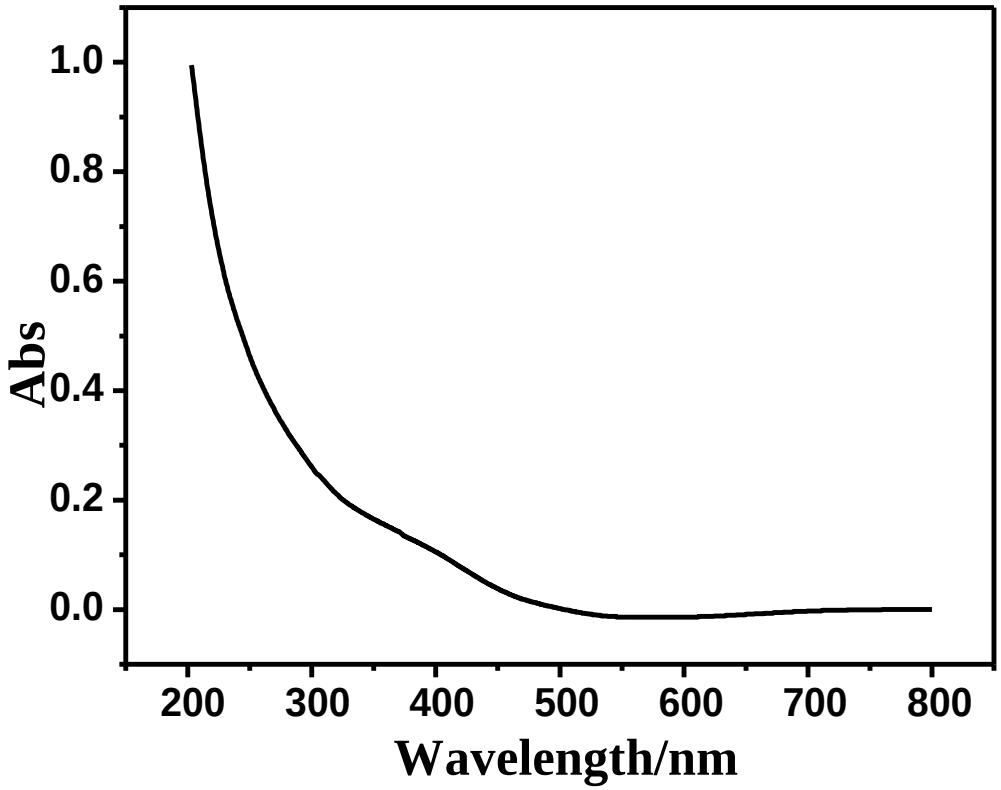

Figure S2. Uv–vis absorption spectrum of GSH-AuNCs.

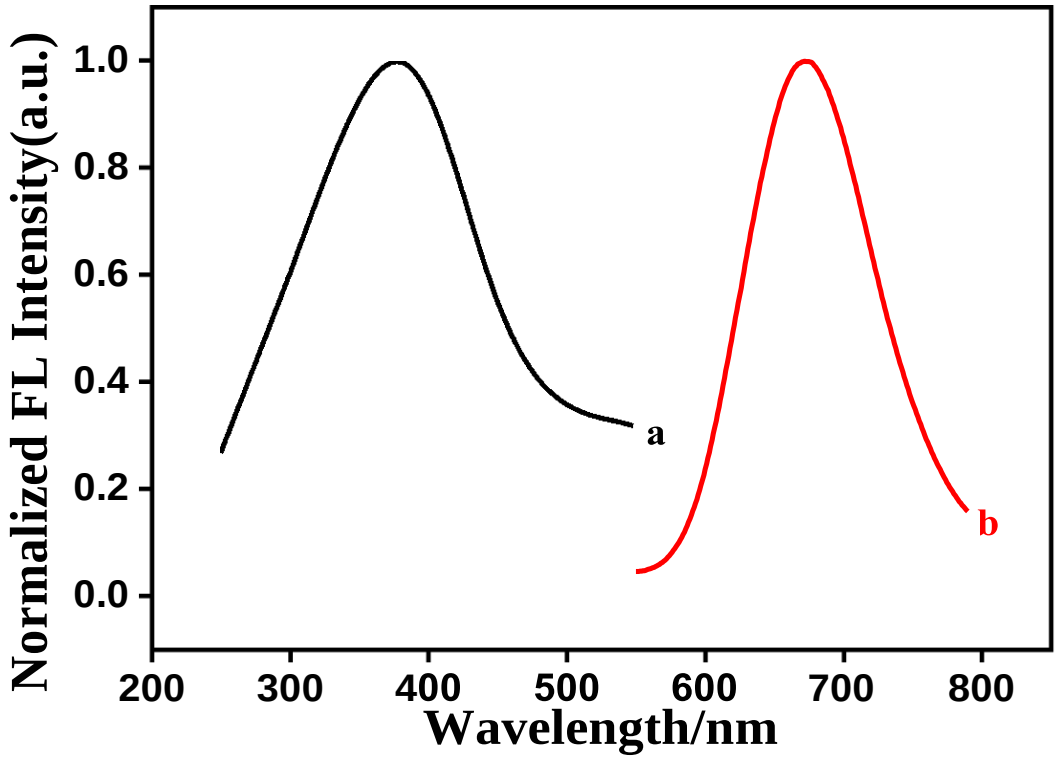

Figure S3. Fluorescent excitation (curve a), fluorescent emission (curve b) spectrum of GSH-AuNCs.

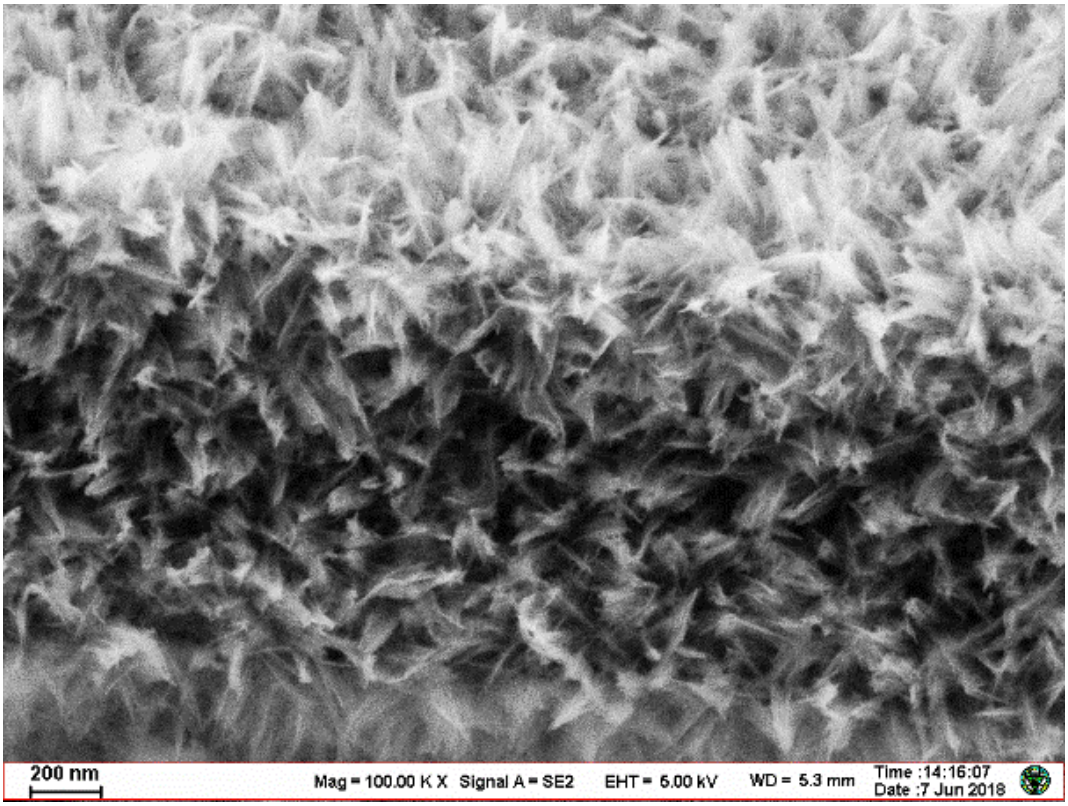

Figure S4. SEM image of MIL-68(In)-NH_2.

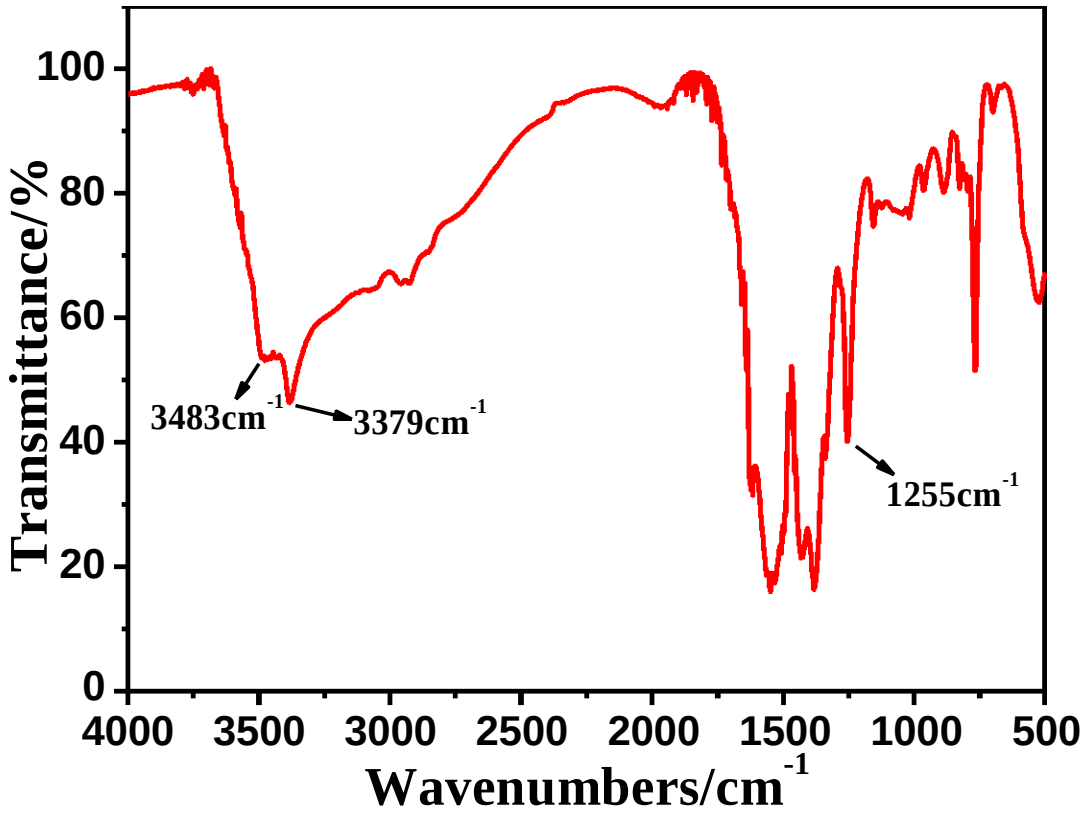

Figure S5. FTIR spectra of MIL-68(In)-NH_2

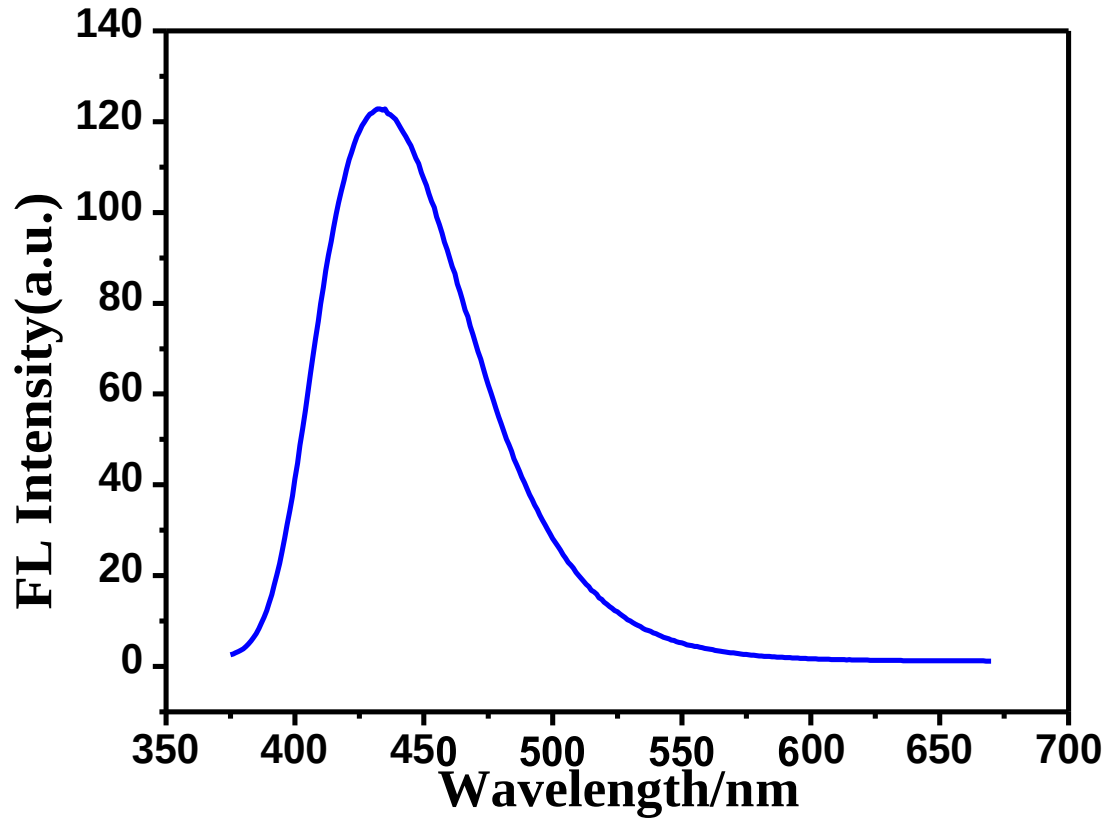

Figure S6. Fluorescent emission spectrum of MIL-68(In)-NH_2.

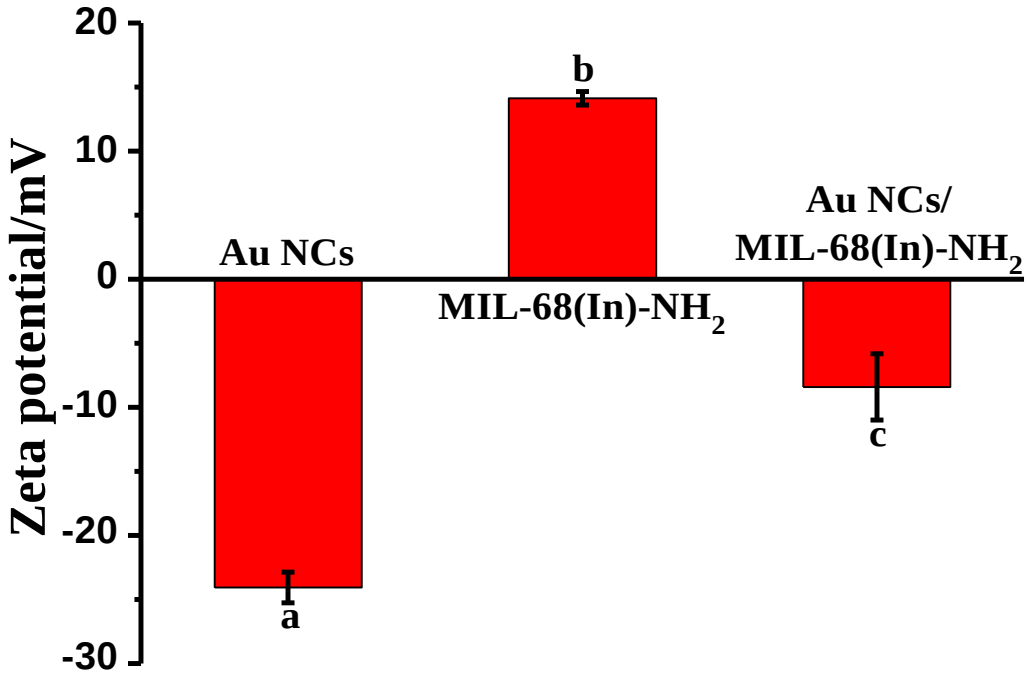

Figure S7. Zeta (ζ) potential results of AuNCs (a), MIL-68(In)-NH_2 (b) and AuNCs/MIL-68(In)-NH_2(c)

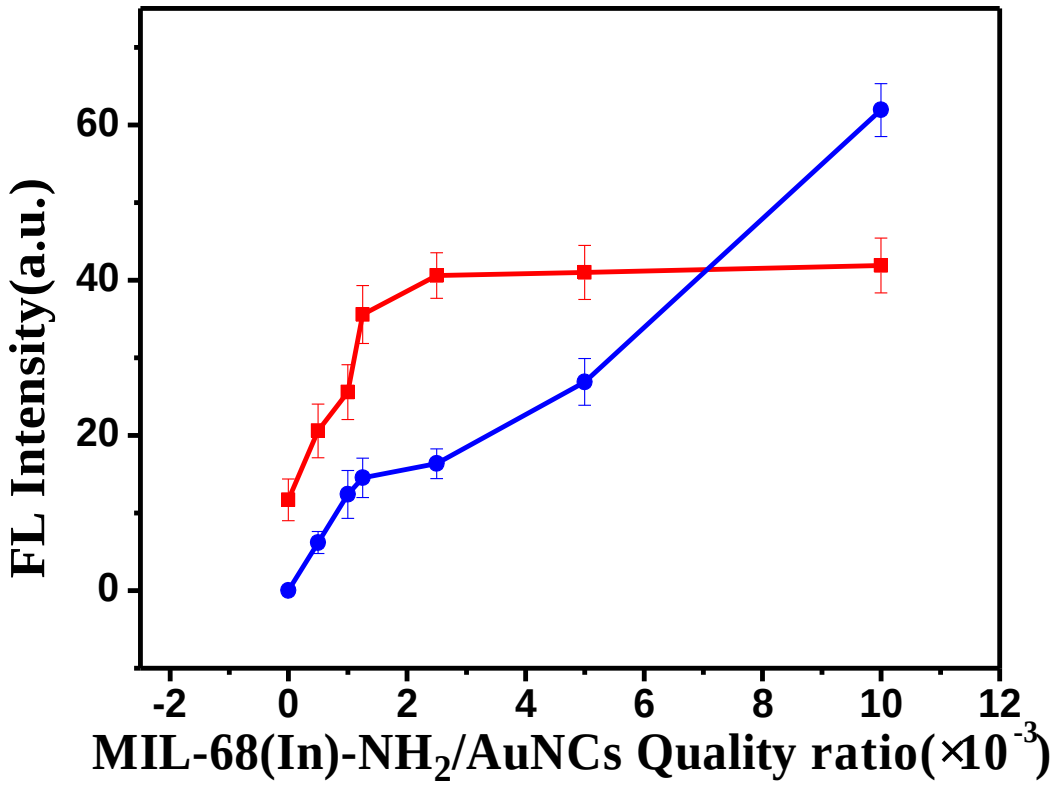

Figure S8. Fluorescent intensity of AuNCs/MIL-68(In)-NH_2 at different quality ratios between MIL-68(In)-NH_2 and Au NCs (A). The red curve represent the red fluorescent intensity of AuNCs/MIL-68(In)-NH_2 at 663 nm, and the blue curve represent the blue fluorescent intensity of AuNCs/MIL-68(In)-NH_2 at 438 nm.

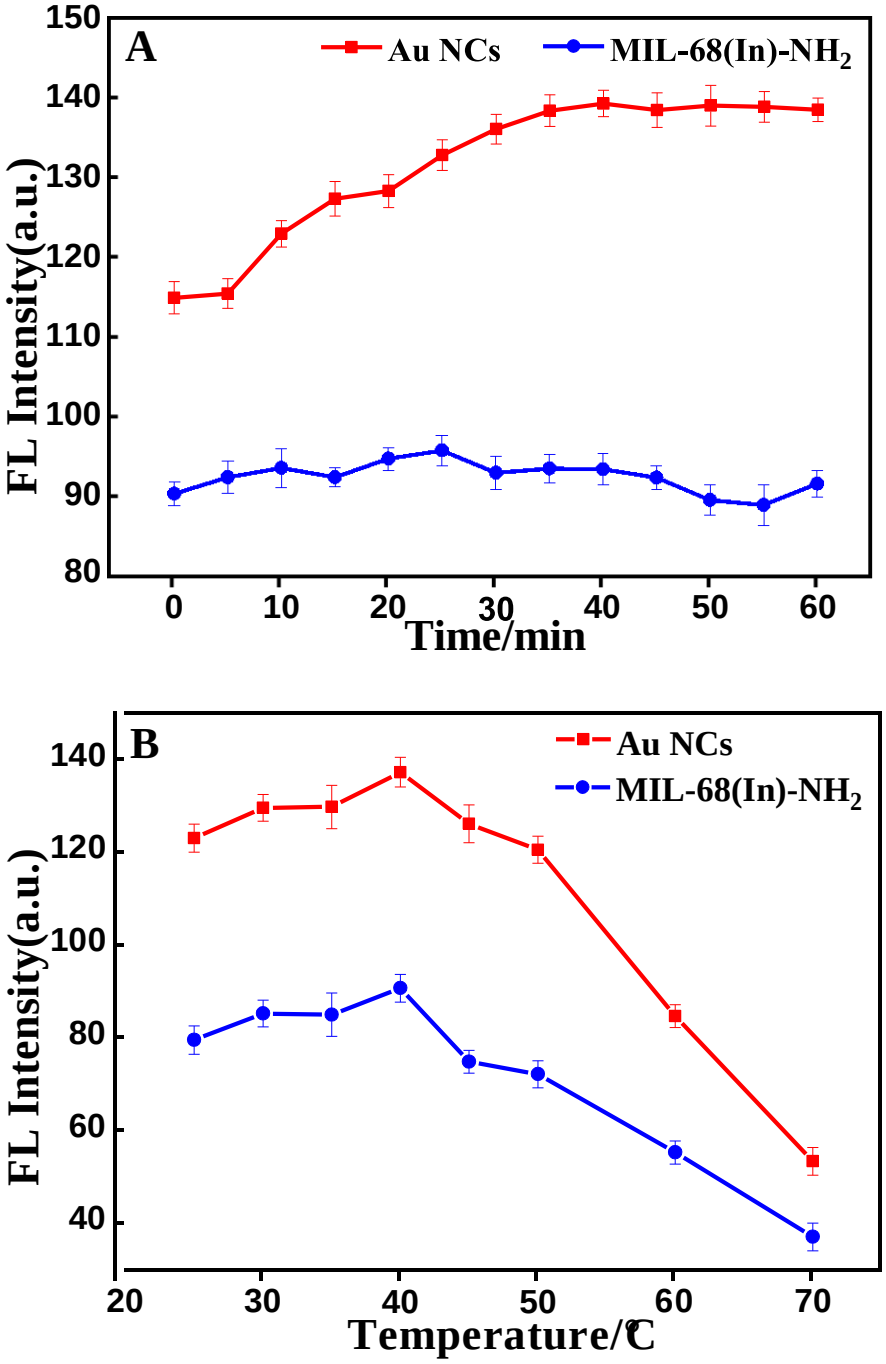

Figure S9. Effect of (A) different time and (B) different temperature on fluorescent intensity of AuNCs/MIL-68(In)-NH_2 incubate with cysteine. The red curves represent the red fluorescent intensity of AuNCs/MIL-68(In)-NH_2/Cys at 668 nm, and the blue curves represent the blue fluorescent intensity of AuNCs/MIL-68(In)-NH_2/Cys at 438 nm.

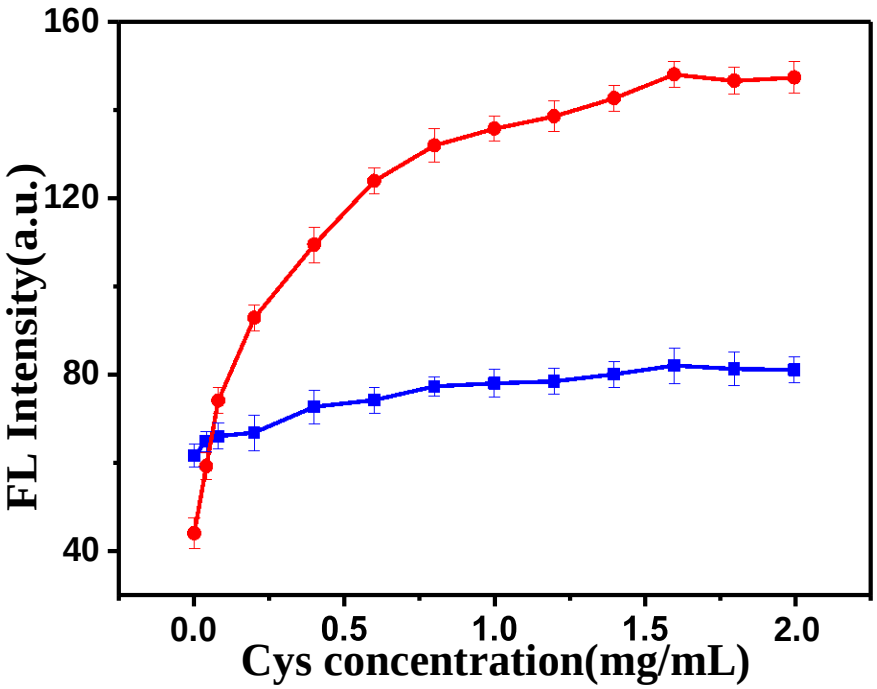

Figure S10. Effect of different cysteine concentration on fluorescent intensity of AuNCs/MIL-68(In)-NH_2 incubate with cysteine. The red curves represent the red fluorescent intensity of AuNCs/MIL-68(In)-NH_2/Cys at 668 nm, and the blue curves represent the blue fluorescent intensity of AuNCs/MIL-68(In)-NH_2/Cys at 438 nm.

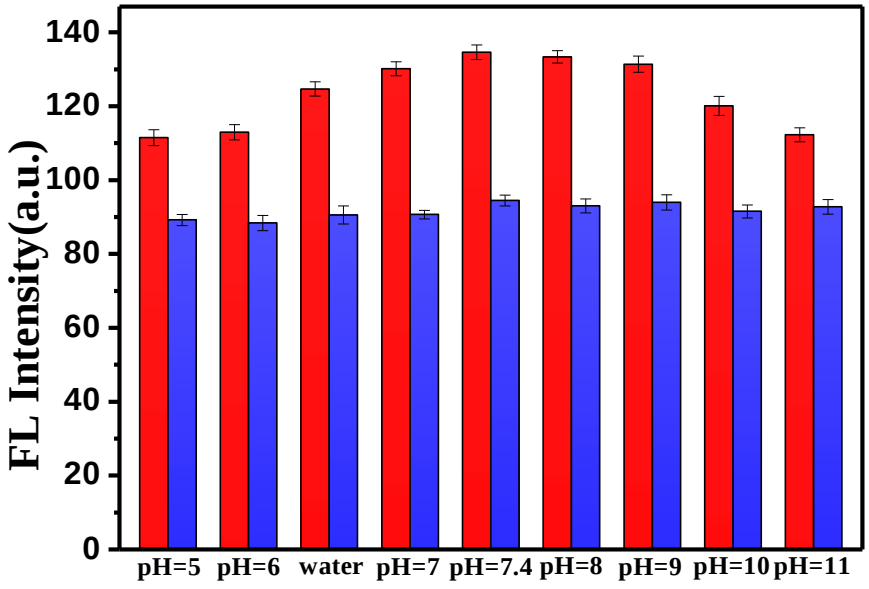

Figure S11. Fluorescent detection of AuNCs/MIL-68(In)-NH_2/Cys at different pH value. The red curves represent the red fluorescent intensity of AuNCs/MIL-68(In)-NH_2/Cys at 668 nm, and the blue curves represent the blue fluorescent intensity of AuNCs/MIL-68(In)-NH_2/Cys at 438 nm.

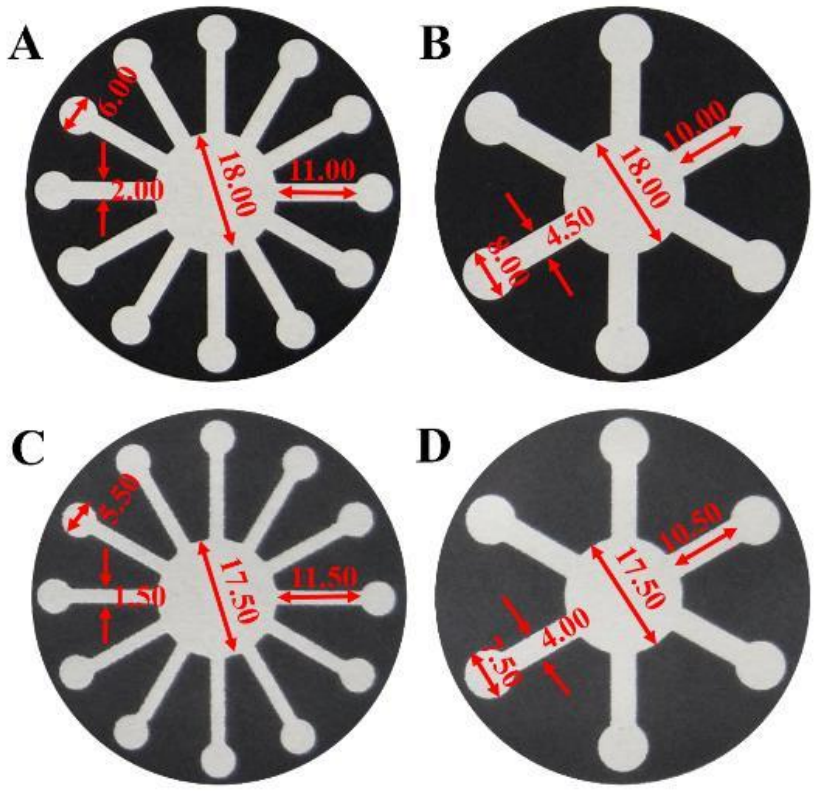

Figure S12. The design of the µPAD. The lengths are showed in millimeters. The µPAD (A) (B) before heating and (C) (D) after heating.

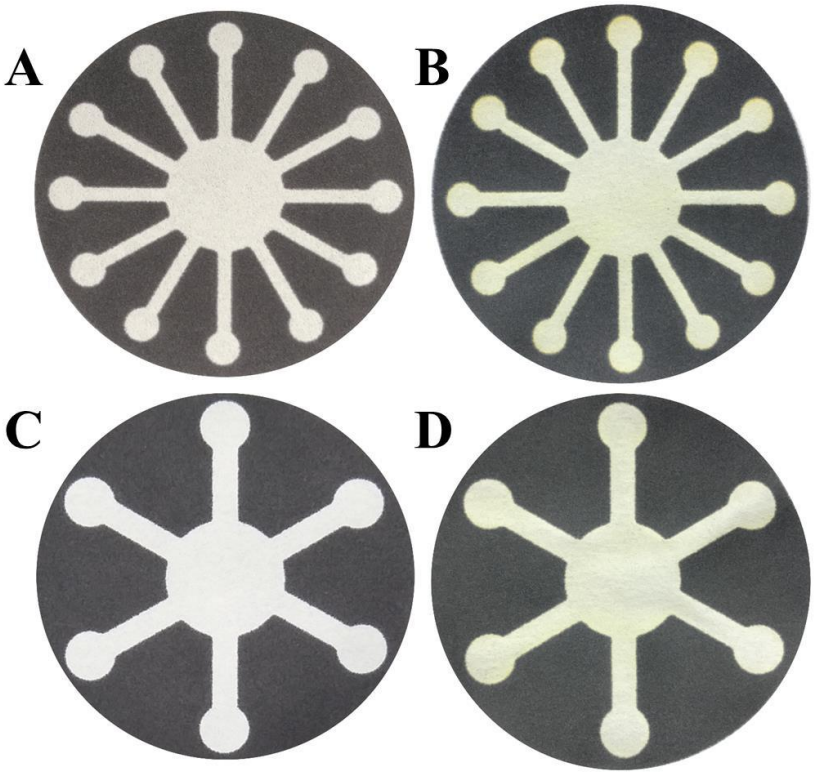

Figure S13. The dry µPAD (A) (C) before treated with AuNCs/MIL-68(In)-NH_2/Cys and (B) (D) after treated with AuNCs/MIL-68(In)-NH_2/Cys.