

*Electronic supplementary information*

Label-free detection of  $\text{Pb}^{2+}$  based on aggregation-induced emission  
enhancement of Au-nanoclusters

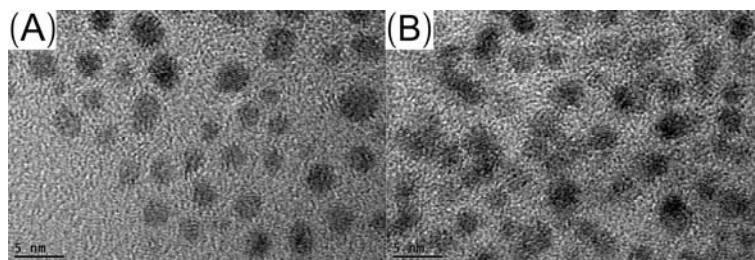
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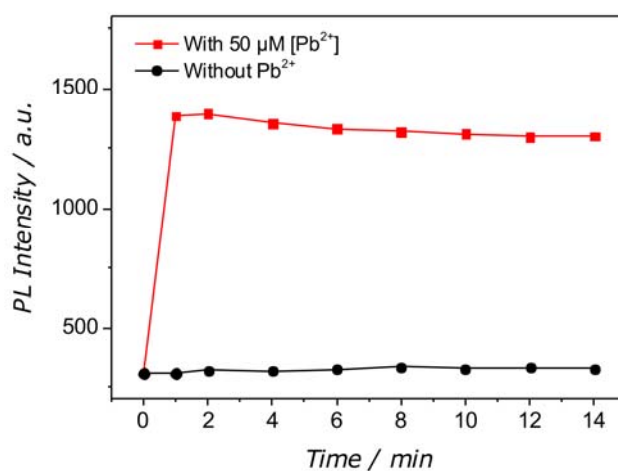
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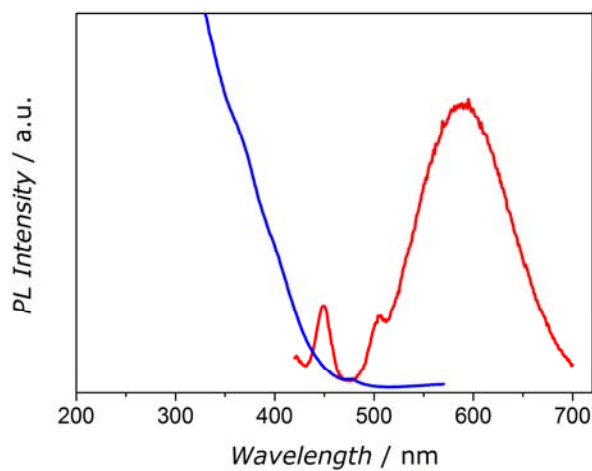
† The authors contributed equally to this work.



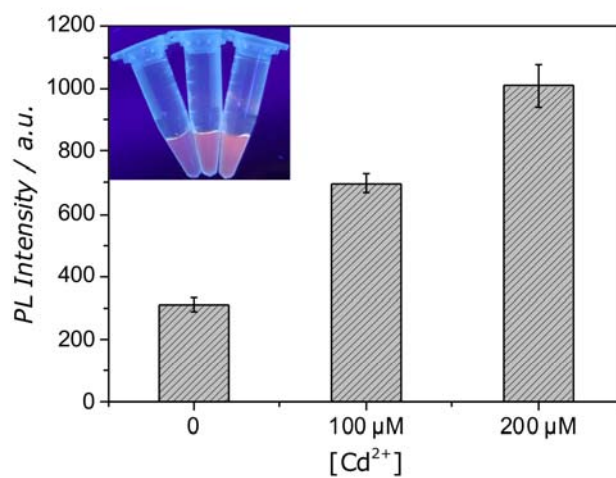
**Fig. S1.** TEM images of GSH-AuNCs in the absence (A) and presence (B) of Pb<sup>2+</sup>.



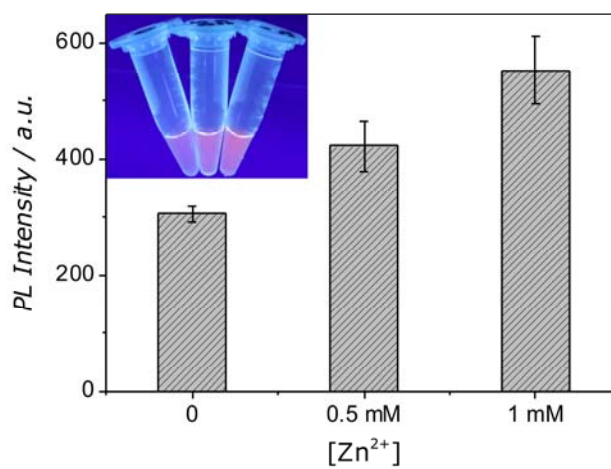
**Fig. S2.** The luminescent intensity changes of GSH-AuNCs in the absence and presence of Pb<sup>2+</sup> respectively as a function of time.



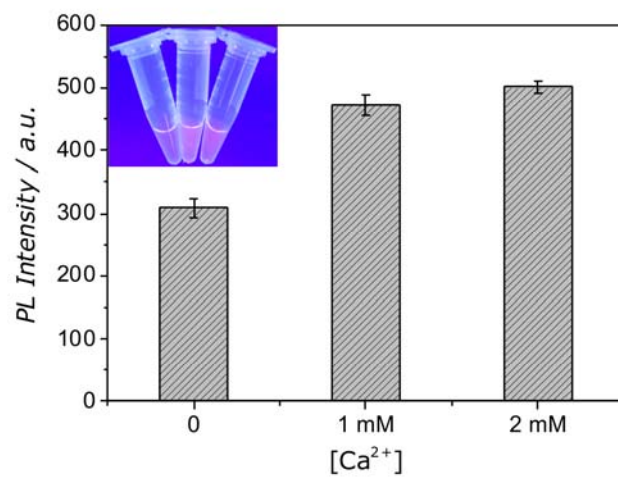
**Fig. S3.** Photoexcitation (blue line, λ<sub>em</sub> = 590 nm), photoemission (red line, λ<sub>ex</sub> = 390 nm) spectra of GSH-AuNCs aggregates (with Pb<sup>2+</sup>).



**Fig. S4.** Luminescent intensities of GSH-AuNCs in the presence of different concentrations of  $\text{Cd}^{2+}$ . Inset: digital photographs of samples with different concentrations of  $\text{Cd}^{2+}$  under UV light.



**Fig. S5.** Luminescent intensities of GSH-AuNCs in the presence of different concentrations of  $\text{Zn}^{2+}$ . Inset: digital photographs of samples with different concentrations of  $\text{Zn}^{2+}$  under UV light.



**Fig. S6.** Luminescent intensities of GSH-AuNCs in the presence of different concentrations of Ca<sup>2+</sup>. Inset: digital photographs of samples with different concentrations of Ca<sup>2+</sup> under UV light.