SUPPORTING INFORMATION

Nitrite ion-induced fluorescence quenching of luminescent BSA-Au_{25} nanoclusters: mechanism and application

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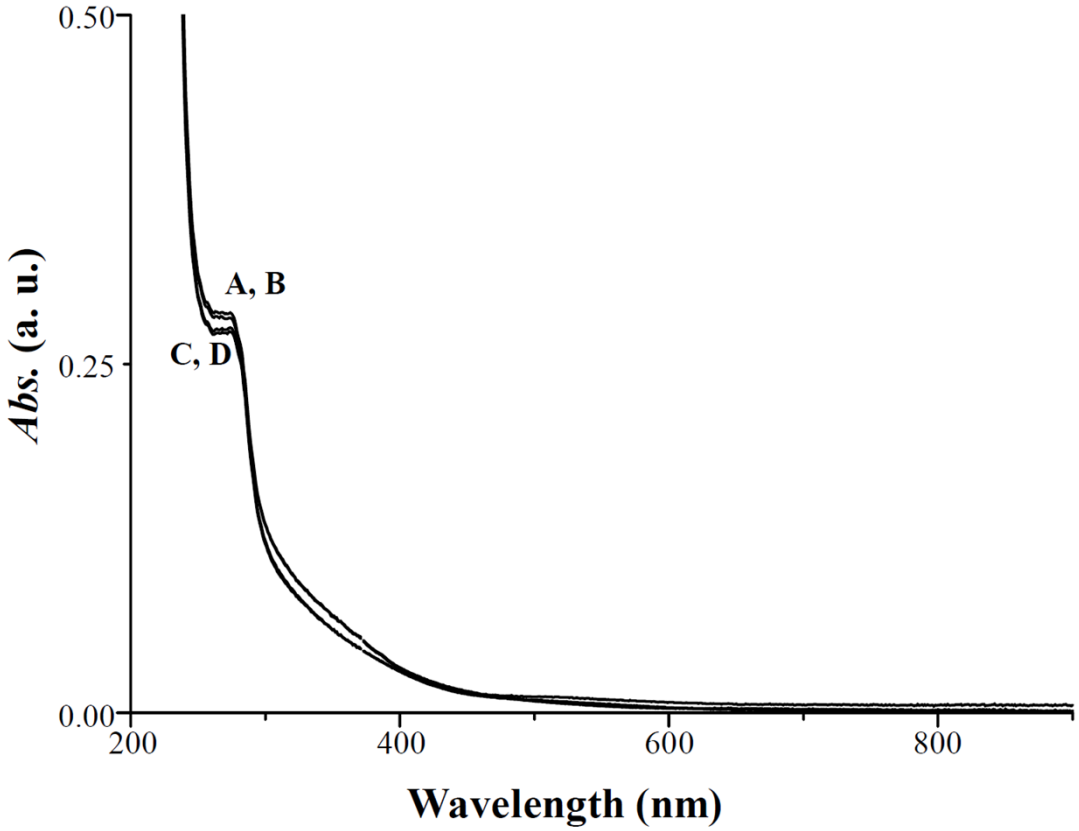

Fig. S1. UV-Vis absorption spectra of 50 mM sodium phosphate (pH 3) containing (A, C) BSA-Au NCs/1std (0.001×) and (B, D) BSA-Au NCs/7thd (0.001×) in the (A, B) absence and (C, D) presence of nitrite (10 μM). The absorbance (*Abs*) is plotted in arbitrary units (a. u.). Other conditions were the same as those described in Fig. 1.

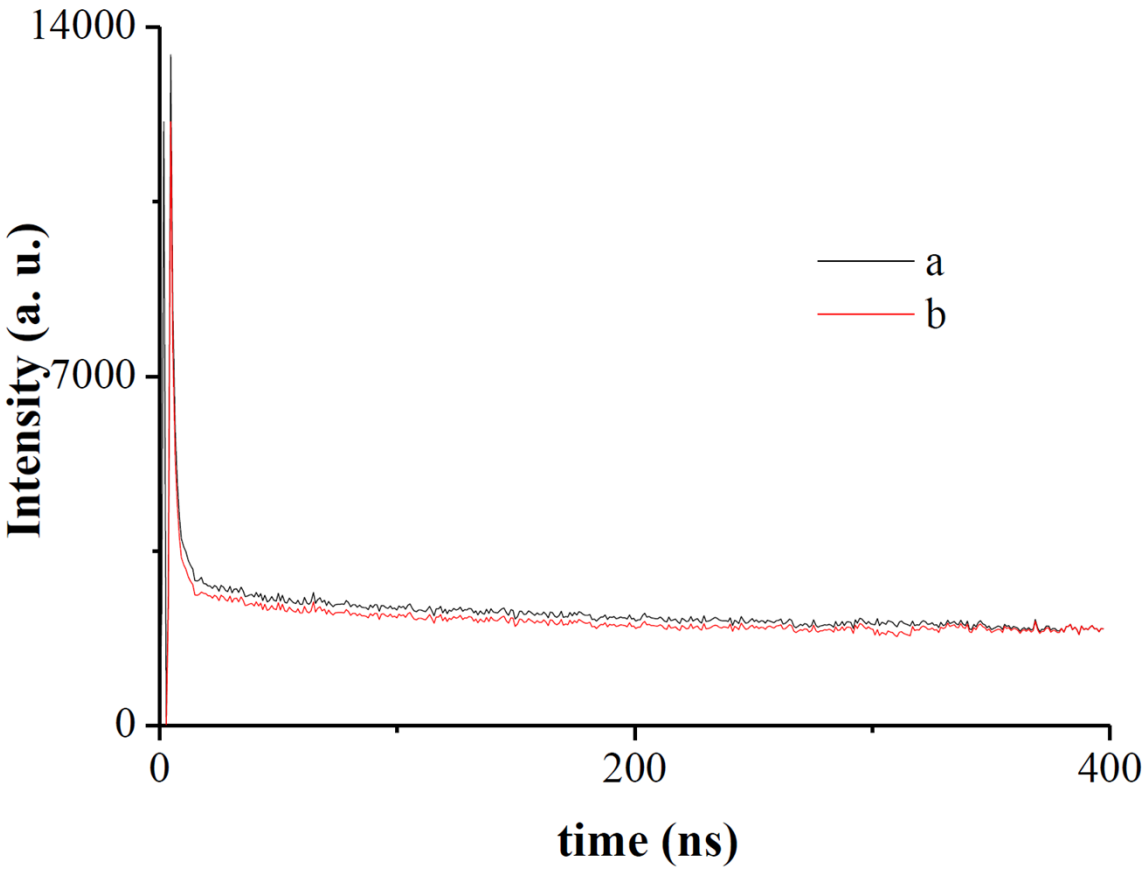

Fig. S2. Fluorescence lifetime, after excitation at 375 nm, of the BSA-Au NCs/7thd (2 μM) in the (a) absence and (b) presence of 10 μM nitrite. The lifetimes (τ_1/τ_2) of BSA-Au NCs in the (a) absence and (b) presence of 10 μM nitrite was obtained to be 121.86(86.81%)/1.77(13.19%) ns and 114.52(86.08%)/1.76(13.92%) ns, respectively, by fitting a biexponential fluorescence decay. Other conditions were the same as described in Fig. 1.

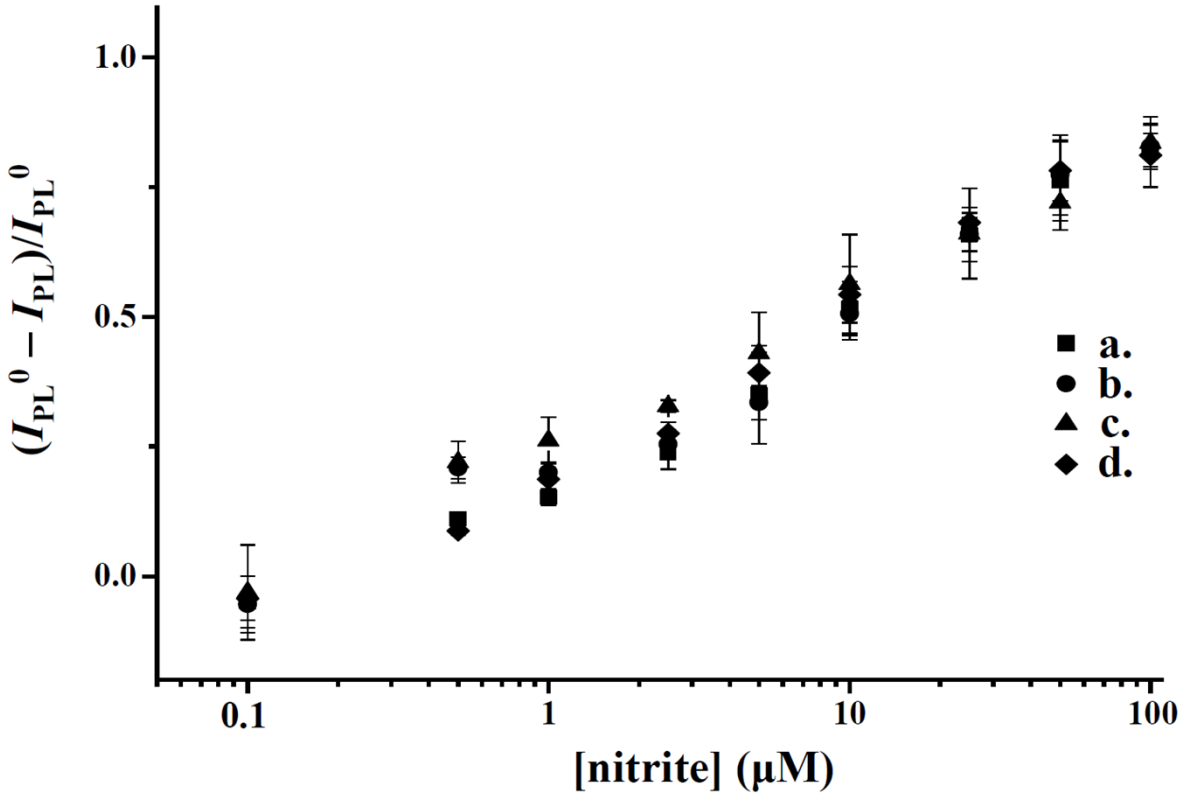

Fig. S3. Analyses of representative samples of (a) river water, (b) tap water, (c) sea water, and (d) lake water using BSA-Au NCs/NCM probes for nitrite detection. Diluted (twofold) water samples were spiked with nitrite (0–100 μM). Error bars represent standard deviations from four repeated experiments. Other conditions were the same as those described in Fig. 5

Table S1. Comparison of parameters of BSA-Au NCs/NCM probe with those of other nanoparticle based fluorometric/colorimetric nitrite sensors

Method	Probe material	Limit of detection	Real sample test	References
Fluorescence	BSA-Au NCs/NCM	100 nM	environmental water samples and human urine	This work
Fluorescence	[a]Rh 6G-fuctionalized silica nanoparticle	1.2 μM	-	[1]
Fluorescence	BSA-Au NCs based NAND logic gate	80 nM	tap water, mineral water, milk powder, ham sausage and human urine	[2]
Fluorescence	BSA-Au NCs	30 nM	water samples	[3]
Fluorescence	BSA-Au NCs	1 nM	water samples	[4]
Fluorescence	1-aminopyrene nanoparticles	43 nM	water samples	[5]
Colorimetry	Citrate capped AuNPs	100 nM	tap water	[6]
Colorimetry	[b]DPPA and MTA functionalized Au NPs	22 μM	lake water	[7]

[a]p-hydroxybenzaldlehyde rhodamine 6G hydrozone

[b]5-[1,2]dithiolan-3-yl-pentanoic acid [2-(4-amino-phenyl)ethyl]amide modified Au NPs and (11-mercapto-undecyl)-trimethyl-ammonium

References

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