Supporting Information

A turn-on near-infrared fluorescent chemosensor for selective detection of lead ion based on fluophors-gold nanoparticles assembly

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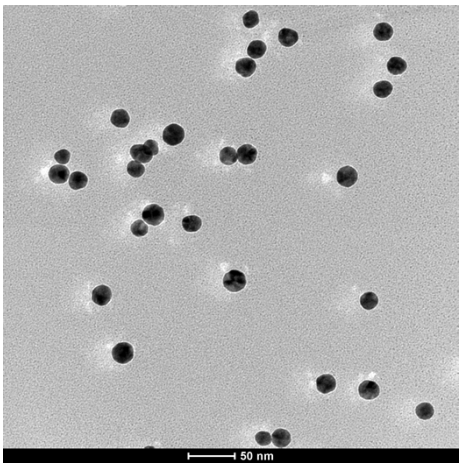

Fig. S1 TEM images of Au Nanoparticles.

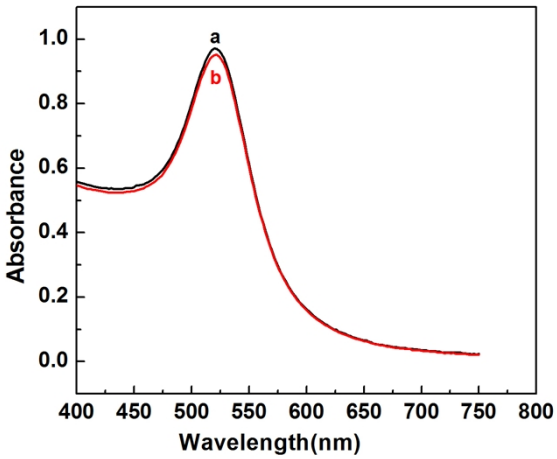

Fig. S2 (a) Absorption spectra of pure Au Nanoparticles (red line)，(b) absorption spectra of GSH-Au NPs (black line).

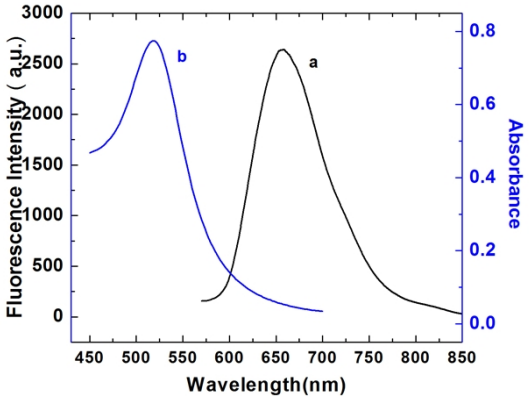

Fig. S3 (a) Fluorescence emission spectra of BCB(black line) at an excitation of 520 nm, and (b) absorption spectra of AuNPs(blue line).

Table S1 Comparison of analytical parameters of different methods for the determination of Pb^{2+}

Methods	Linear range / μM	Detection limit / nM	Ref.
Colorimetric filtrations / metal chelate precipitations	0-10	3000	1
DPASV/Silver nanonuts modified glassy carbon electrode	1.8-324	0.54	2
LA-ICP-MS / dried blood spot on a filter membrane	0-1.8	0.36	3
DPASV / tubular bismuth-film electrodes	1.1-35	0.72	4
LPME-SFO / undecanoic acid (UA)	0.0018-0.028	0.036	5
SWASV/digesting fish tissue with hydrogen peroxide/hydrochloric acid mixture---solid phase (SP) purification of the digested material	0.0036-3.6	1.1	6
DPASV/Flow manifold of the sequential injection lab-on-valve (LOV) system with an integrated electrochemical flow cell	0.0036-0.36	1.5	7
DPASV/Nanocrystalline Boron-Doped Diamond Electrode	0.02-0.28		8
ASV/the inducing adsorption ability of I^-	0.02-4	6	9
Fluorimetry/ GO-DNAzyme based biosensor	0.001-1	0.3	10
Fluorimetry/ G-quadruplex DNAzyme	0-1	1.0	11
Fluorimetry/ QDs- AuNPs	0.8-20	100	12
Fluorimetry/ssDNA-SWCNT	0.005-10	1	13
Fluorimetry/ DNAzyme-Pb^{2+}	0.001-1		14
Fluorimetry/ rhodamine–phenylurea conjugate	0-0.007	7	15
Fluorimetry/ DNA duplex-quadruplex exchange	0.02-1	20	16
Fluorimetry/ Abasic Site-Containing DNAzyme and Aptamer	0-1	4	17
Fluorimetry/ Ag nanorods (AgNR)-Rhodamine 6G (R6G)	20-60	180	18
Fluorimetry/ glutathione modified AuNDs	0.005-5	2	19
DPASV/amine functionalized graphene oxide	0.5-50	0.0001	20
flow cytometric/DNAzyme	0.001-0.1	0.6	21
sectrophotometric/unimolecular G-quadruplex peroxidase-like DNAzyme (PW17)	0.05-1.2	27	22
Fluorimetry/BCB-Au NPs	0.00075-0.01	0.51	This Work

DPASV, Differential pulse anodic stripping voltammetry; LA-ICP-MS, laser ablation coupled with inductively coupled plasma mass spectrometry; LPME-SFO, liquid phase microextraction by solidification of a floating organic droplet; SWASV, square wave anodic stripping voltammetry; ASV, anodic stripping voltammetry.

Ref.

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Table S2 The effects of different foreign ions on the determination of Pb^{2+} with the BCB-AuNPs system[a]

Coexisting ions	multiples of Pb^{2+}	Variation of fluorescence intensity (%)
Al^{3+} , Cl^{-}	100	1.9
Ca^{2+}, Cl^{-}	100	2.9
Co^{2+}, Cl^{-}	100	4.1
Cr^{2+} , SO_4^{2-}	50	4
Cu^{2+}, SO_4^{2-}	50	1.6
Cd^{2+}, SO_4^{2-}	50	0.3
K^{+}, Cl^{-}	500	-1.0
Mg^{2+}, SO_4^{2-}	50	3
Mn^{2+}, SO_4^{2-}	50	4.1
Na^{+}, Cl^{-}	500	-2
Zn^{2+}, AC^{-}	50	5.2
Fe^{3+} , Cl^{-}	10	4.9

[a]Concentration of Pb^{2+}:5.0 nM. Other conditions are the same as those described in the procedure.