

Supporting Information

A Turn-on Fluorescence Sensor for Hg^{2+} in Food Based on FRET Between Aptamers

Functionalized Upconversion Nanoparticles and Gold Nanoparticles

Yan Liu ^a, Qin Ouyang ^a, Huanhuan Li ^a, Min Chen ^a, Zhengzhu Zhang ^b, Quansheng Chen ^{a,b,*}

^a School of Food and Biological Engineering, Jiangsu University, Zhenjiang 212013, China

^b State Key Laboratory of Tea Plant Biology and Utilization, Anhui Agricultural University, Hefei 210036, China

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* Corresponding author. Tel.: +86-511-88790318. Fax: +86-511-88780201.

E-mail: q.s.chen@hotmail.com (Q.S.Chen)

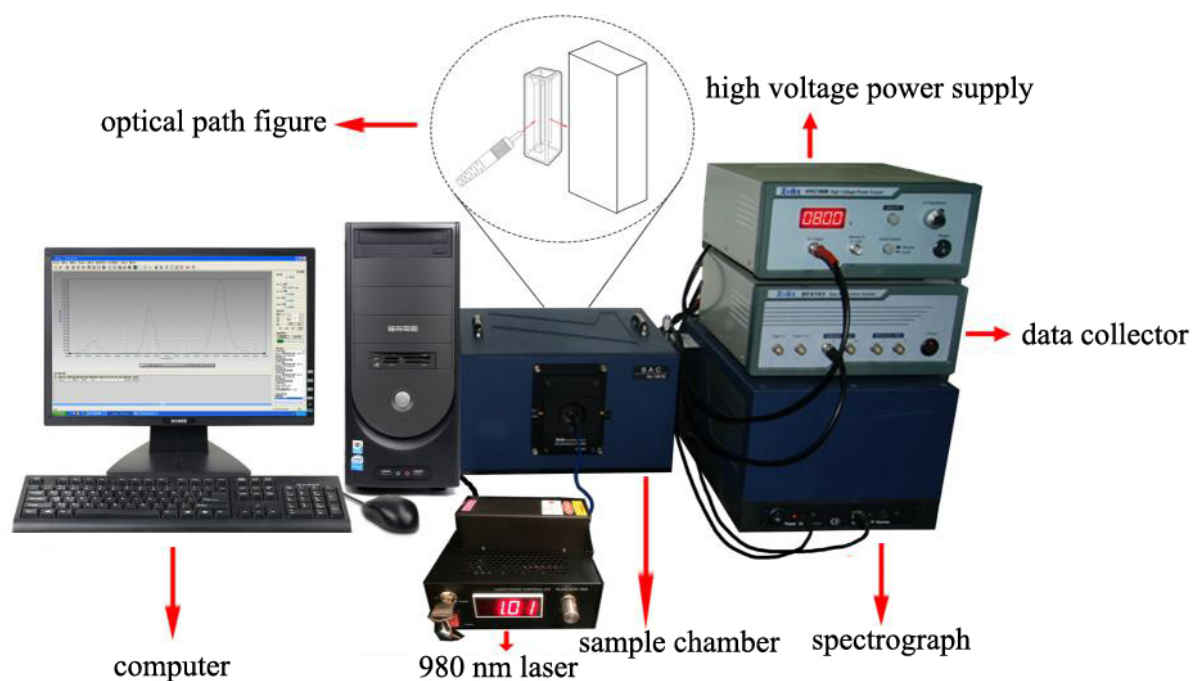


Figure S1 Assembly diagram of the upconversion fluorescence spectrophotometer.

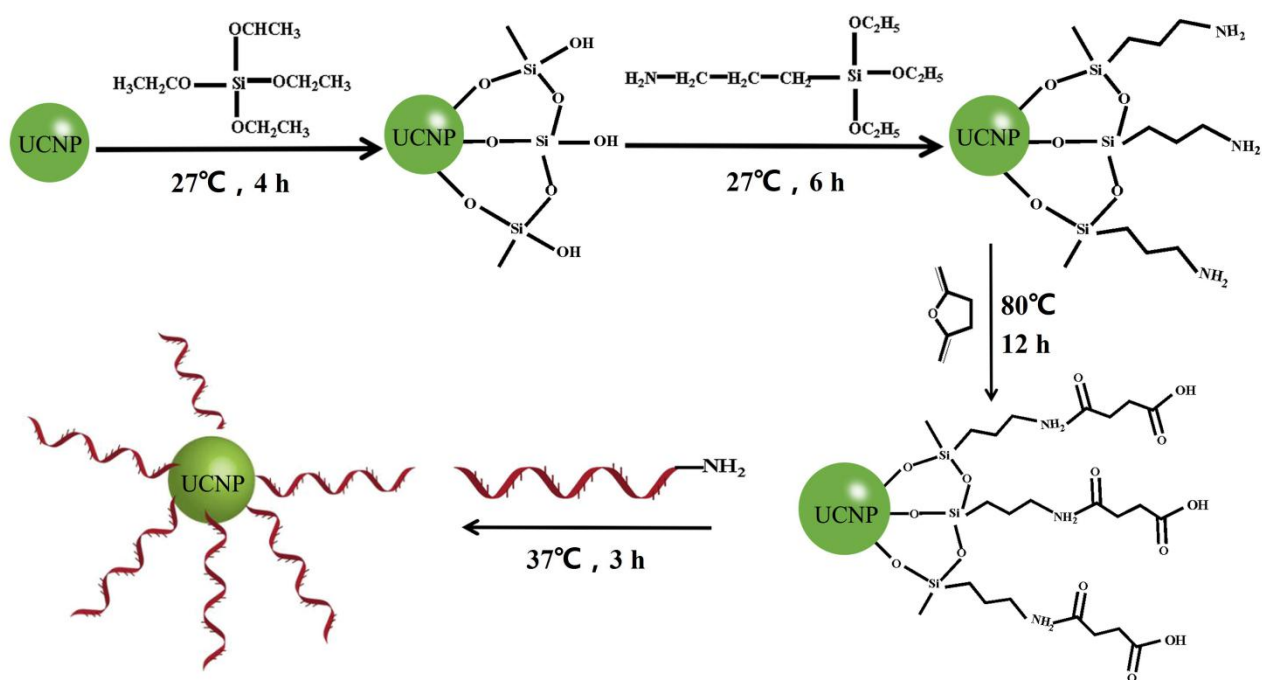


Figure S2. Schematic Illustration of the Chemical Route for the Functionalization of UCNPs.

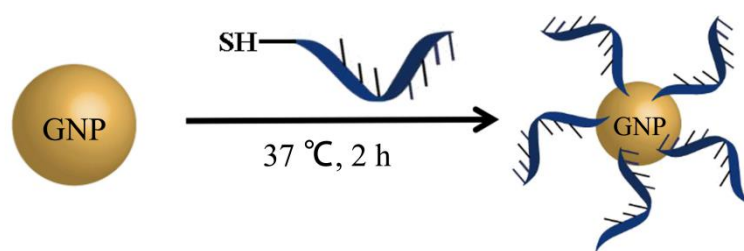


Figure S3. Schematic Illustration of the Chemical Route for the Functionalization of GNPs.

Table S1. Comparison of the developed method in this work with other published fluorescence methods for the detection of Hg²⁺ ion.

Materials		LOD	Linear range	Sample type	Recovery rate	Ref.
DAM	Water	1.07 μ M	0-150 μ M	Yellow River (spiked)	98.2%-101.3%	1
Eu ³⁺ hybrid carbon dots	Water	2.2 μ M	5-250 μ M	Environmental water (spiked)	99.58%–100.46%	8
Rhodamine derivative	CH ₃ CN/H ₂ O 9 : 1	12 nM	0–25 μ M	NA	-	2
Rhodamine derivative	CH ₃ CN/H ₂ O 1:1	44 nM	5-12 μ M	NA	-	4
Benzo[2,1,3]thiadiazole (BDT)-containing CP	THF solution	1 nM	0-190 μ M	NA	-	6
AuNPs-DNA-FAM	water	8 nM	20–90 nM	Tap water (spiked)	96.5%-102.2%	3
Cysteamine-capped QDs	Water	1 nM	5-300 nM	Tap water (spiked)	97.2% -115.3%	5
Cu nanoclusters	Water	22 nM	0.04–60 μ M	Tap water, Lotus lake water and river water (spiked)	96.9%-105.4%	7
UCNPs-aptamers-GNPs	Water	60 nM	0.2-20 μ M	Tap water, milk (spiked)	96.61%-103.77%	This work

DAM: 1-(6-(dimethylamino)naphthalen-2-yl)-1,1-dimethylene-*N*-(2-morpholinoethyl)-l6-sulfanamine;

CP: conjugated polymer;

THF: tetrahydrofuran.

Ref.:reference

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