Electronic Supplementary Material (ESI) for Analyst.

Supporting Information

Green, fast, and large scale synthesis of highly fluorescent Au nanoclusters for detecting Cu^{2+} and temperature sensing

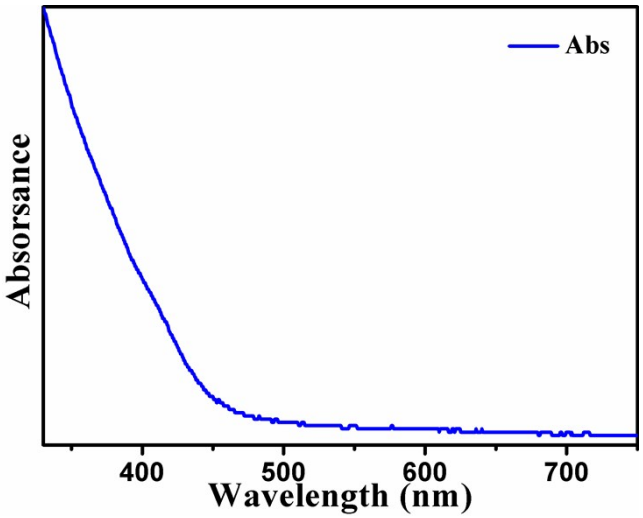

Figure S1. UV - Vis absorption spectra of Au NCs.

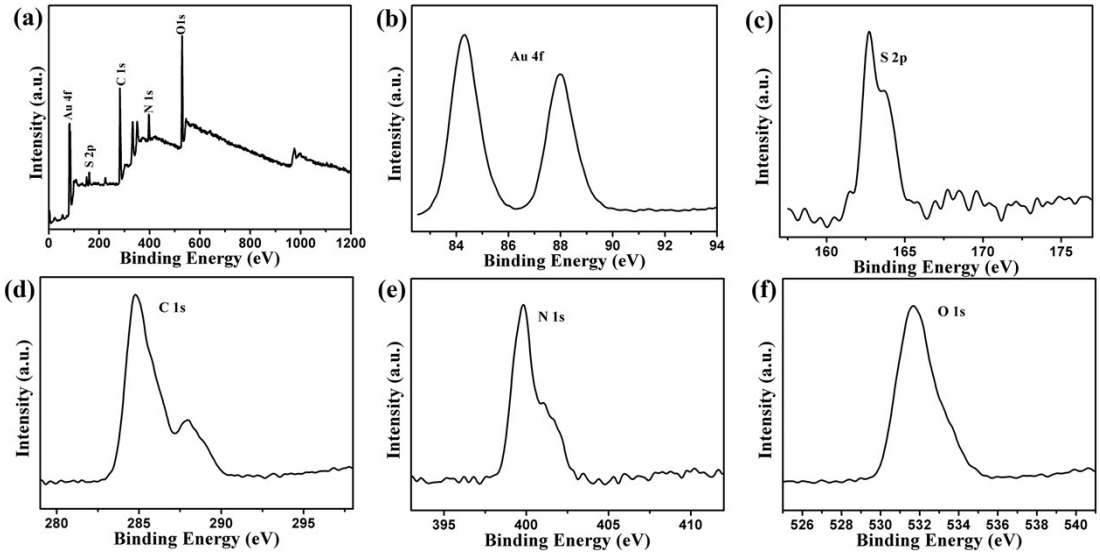

Figure S2. (a) the survey XPS spectrum of as-prepared GSH–Au NCs and XPS spectra of resultant fluorescent GSH–Au NCs: (b), Au 4f; (c), S 2p; (d), C 1s; (e), N 1s; (f), O 1s

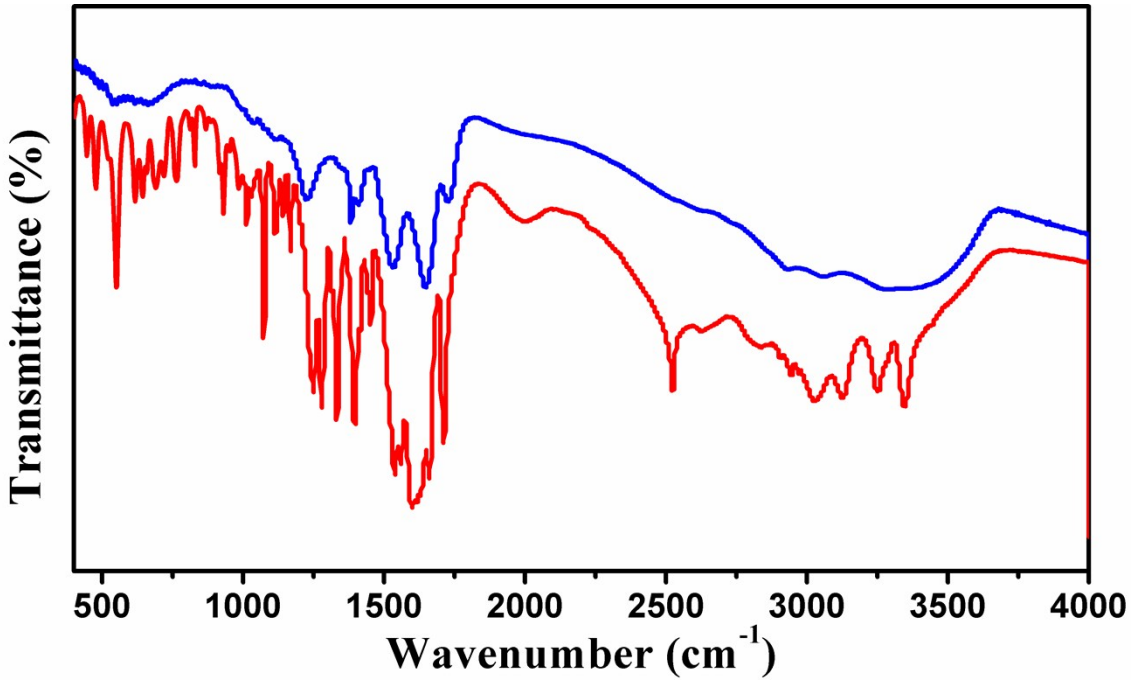

Figure S3. FT–IR spectra of GSH (red curve) and Au NCs (blue curve).

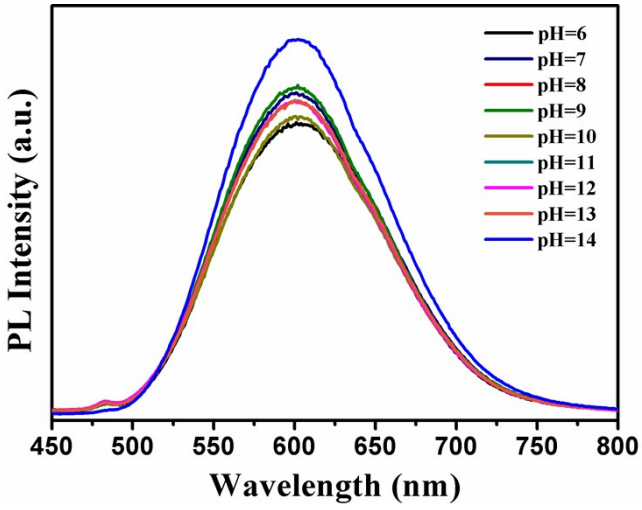

Figure S4. photoluminescence spectra of Au NCs at different pH.

Table S1. Determination of Cu^{2+} ions in different water samples using a standard addition method (n= 3).

Samples	**Cu^{2+} spiked (ppb)**	**Cu^{2+} found (ppb)**	**Recovery (%)**	**Relative standard deviation (%)**
Tap water	10.00	10.22	102.20	1.16
	20.00	19.95	99.75	1.68
Drinking water	10.00	9.96	99.60	0.97
	20.00	19.86	99.30	1.32
Lake water	10.00	10.52	105.20	1.66
	20.00	20.48	102.40	1.72

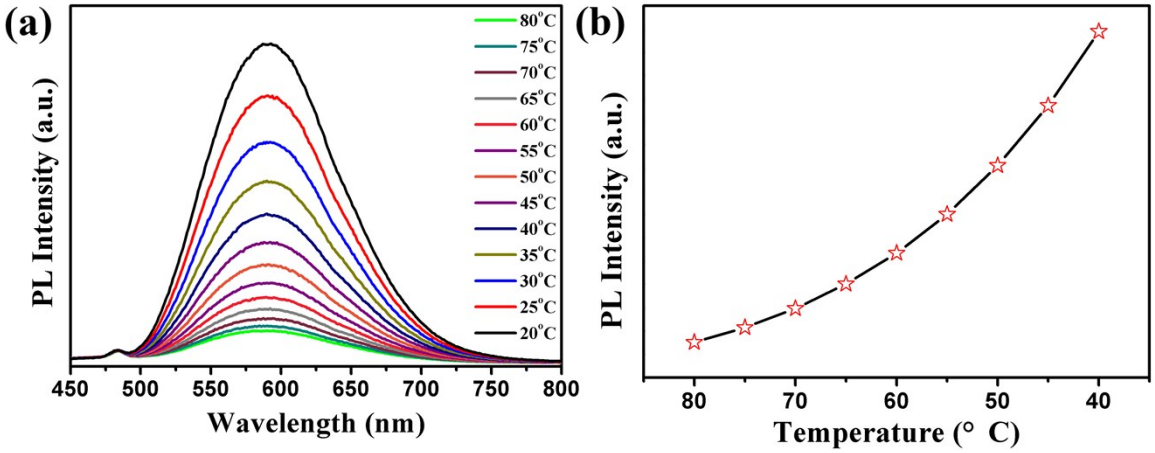

Figure S5. (a) Photoluminescence spectra of Au NCs with an decrease of temperature from 80 to 20 °C (top to bottom); (b) plot of photoluminence intensity of resultant Au NCs at various temperature.