

Supplementary materials

Table S1. Detection of Pb(II) ions in spiked tap water by using

*mw*_G-BSA-AuNCs.

Probe	Added Pb(II), nM	Detected Pb(II), nM ($\pm$ SD)	Recovery (%)
<i>mw</i> _G-BSA-AuNCs	3	2.81 ($\pm$ 0.15)	93.81
	5	4.91 ($\pm$ 0.12)	98.33
	9	8.47 ($\pm$ 0.18)	94.16
	15	15.33 ($\pm$ 0.10)	102.2
<i>mw</i> _BSA-AuNCs	5	4.79 ($\pm$ 0.74)	95.94
	9	7.33 ($\pm$ 0.76)	81.44
	15	13.86 ($\pm$ 0.63)	92.42

(n=5)

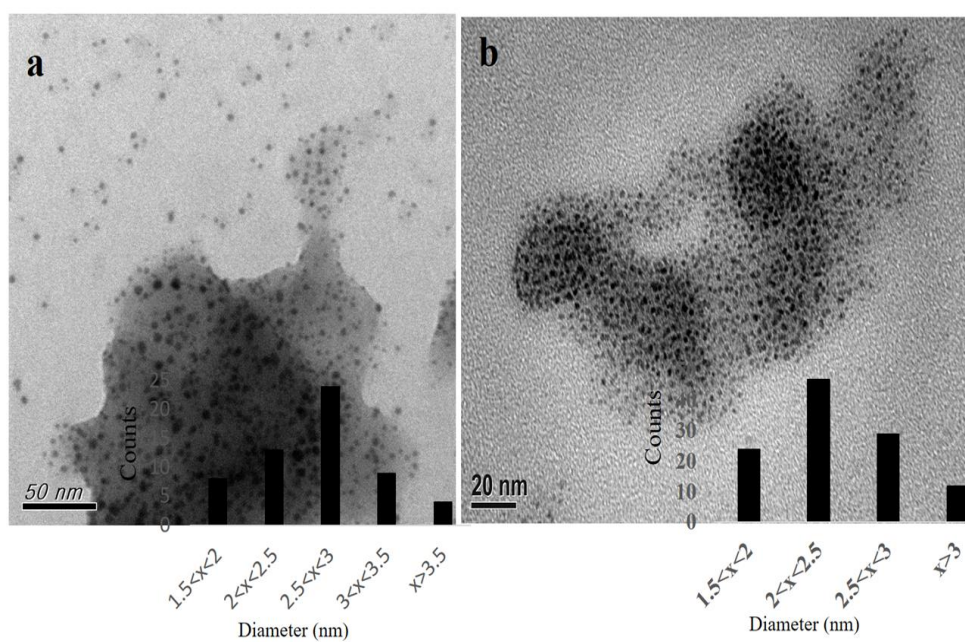


Figure S1. TEM image of synthesized (a) *mw*_G-BSA-AuNCs and (b) *mw*_BSA-AuNCs.

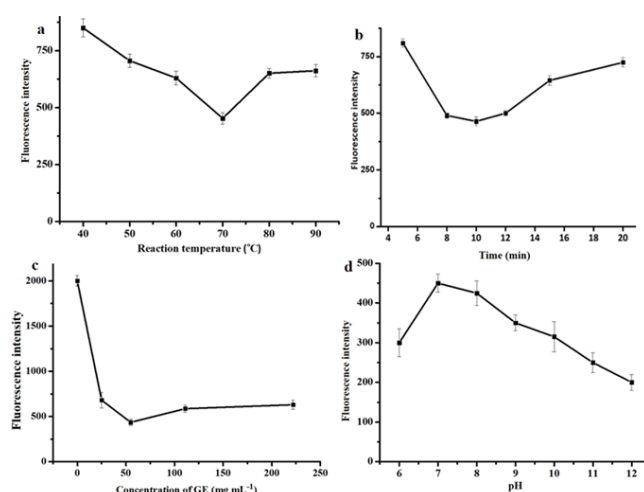


Figure S2. Optimization of the fluorescence emission intensity of *mw*_G-BSA-AuNCs for different parameters. (a) reaction temperature (b) reaction time (c) GE concentration and (d) pH effect.

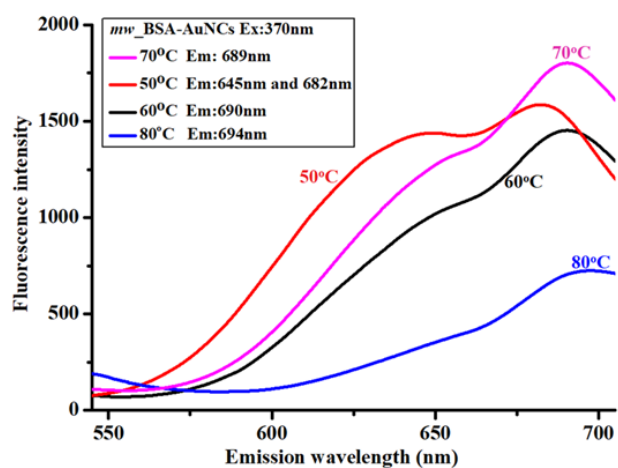


Figure S3. Fluorescence spectra of *mw*_BSA-AuNCs for different reaction temperatures.

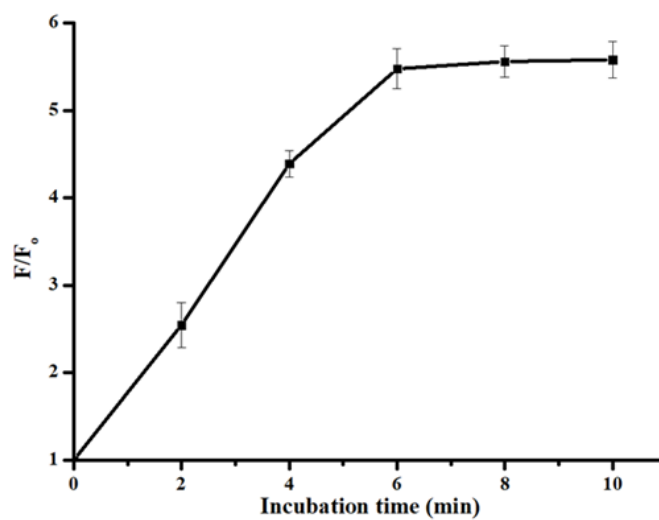


Figure S4. Optimization of the fluorescence emission intensity *mw*_G-BSA-AuNCs of for different incubation times.