Supporting Information (SI)

Sensitive and selective detection of mercury ions based on papain and 2, 6-Pyridinedicarboxylic acid functionalized gold nanoparticles

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Fig. S-1 UV-Vis absorption spectra of the P-PDCA-AuNPs with different concentration of papain ((a) $1.0\times10^{-5}$, (b) $1.0\times10^{-6}$, (c) $1.0\times10^{-7}$, (d) $1.0\times10^{-8}$ M) in the presence of 1 mM Hg$^{2+}$. 
Fig. S–2  $A_{650}/A_{520}$ values of P-PDCA-AuNPs versus the concentrations of papain ($1.0 \times 10^{-5}$, $1.0 \times 10^{-6}$, $1.0 \times 10^{-7}$, $1.0 \times 10^{-8}$ M) in the presence of 1 mM Hg$^{2+}$. Error bars were obtained from three experiments.
Fig. S-3 $A_{650}/A_{520}$ values of P-PDCA-AuNPs with the changes of time in the presence of 1 mM Hg$^{2+}$. When the time was increased to 15 min, the $A_{650}/A_{520}$ values of P-PDCA-AuNPs began to level off, suggesting that the optimal incubated time was 15 min. Error bars were obtained from three experiments.
**Fig. S-4** $A_{650}/A_{520}$ of P-PDCA-AuNPs with different pH (6, 7, 8, 9) in the presence of 1 mM Hg$^{2+}$. Error bars were obtained from three experiments.
**Fig. S-5** $A_{650}/A_{520}$ of P-PDCA-AuNPs with different temperatures (10, 20, 30, 40, 50, 60, 70, 80, 90 °C) in the presence of 1 mM Hg$^{2+}$. Error bars were obtained from three experiments.
Fig. S-6 (A) UV-Vis absorption spectra of P-PDCA-AuNPs in the presence of different kinds of ions. (B) Color changes of P-PDCA-AuNPs in the presence of different kinds of ions. Concentration of Hg$^{2+}$ was 1 mM, while others were 20 mM.