Electronic Supplementary Information

for

Water-soluble luminescent copper nanoclusters reduced and protected by histidine for sensing of guanosine 5’-triphosphate

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Supporting Figures

Fig. S1 XPS spectrum of Cu 2p electrons in dried Cu NCs.

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**Fig. S2** Photographs of alanine and CuCl$_2$ refluxed for 12 hours at 70 °C under daylight (A) and under 365 nm UV lamp light (B). $c_{\text{alanine}}$, 112.5 mM; $c_{\text{CuCl}_2}$, 2.5 mM.

**Fig. S3** Effects of temperature on the synthesis of Cu NCs.

**Fig. S4** Effects of the ratio of histidine and CuCl$_2$ on the synthesis of luminescent Cu NCs. $c_{\text{CuCl}_2}$, 2.5 mM, $c_{\text{histidine}} / c_{\text{CuCl}_2} = 10:1$, 15:1, 30:1, 45:1, and 60:1.
**Fig. S5** Effects of pH values on the quenching extent of Cu NCs induced by GTP. $I_0$ and $I$ represent the luminescence intensity of Cu NCs in the absence and presence of GTP, respectively. $\lambda_{\text{ex}} = 350.0 \text{ nm}$, $\lambda_{\text{em}} = 456.0 \text{ nm}$, $c_{\text{GTP}} = 12 \text{ mM}$, pH values of tris-HCl buffer, 7.4, 7.6, 7.8, 8.0, 8.2, 8.4, 8.6, 8.8.

**Fig. S6** The luminescent responses of Cu NCs to some inorganic anions including CH$_3$COO$^-$, PO$_4^{3-}$, Br$^-$, HPO$_4^{2-}$, Cl$^-$, HCO$_3^-$, P$_2$O$_7^{4-}$. $\lambda_{\text{ex}} = 350.0 \text{ nm}$, $c_{\text{anion}} = 12 \text{ mM}$, pH 7.8 tris-HCl.