Supporting Information

Nucleoside-regulated catalytic activity of copper nanoclusters and its application for mercury ions detection

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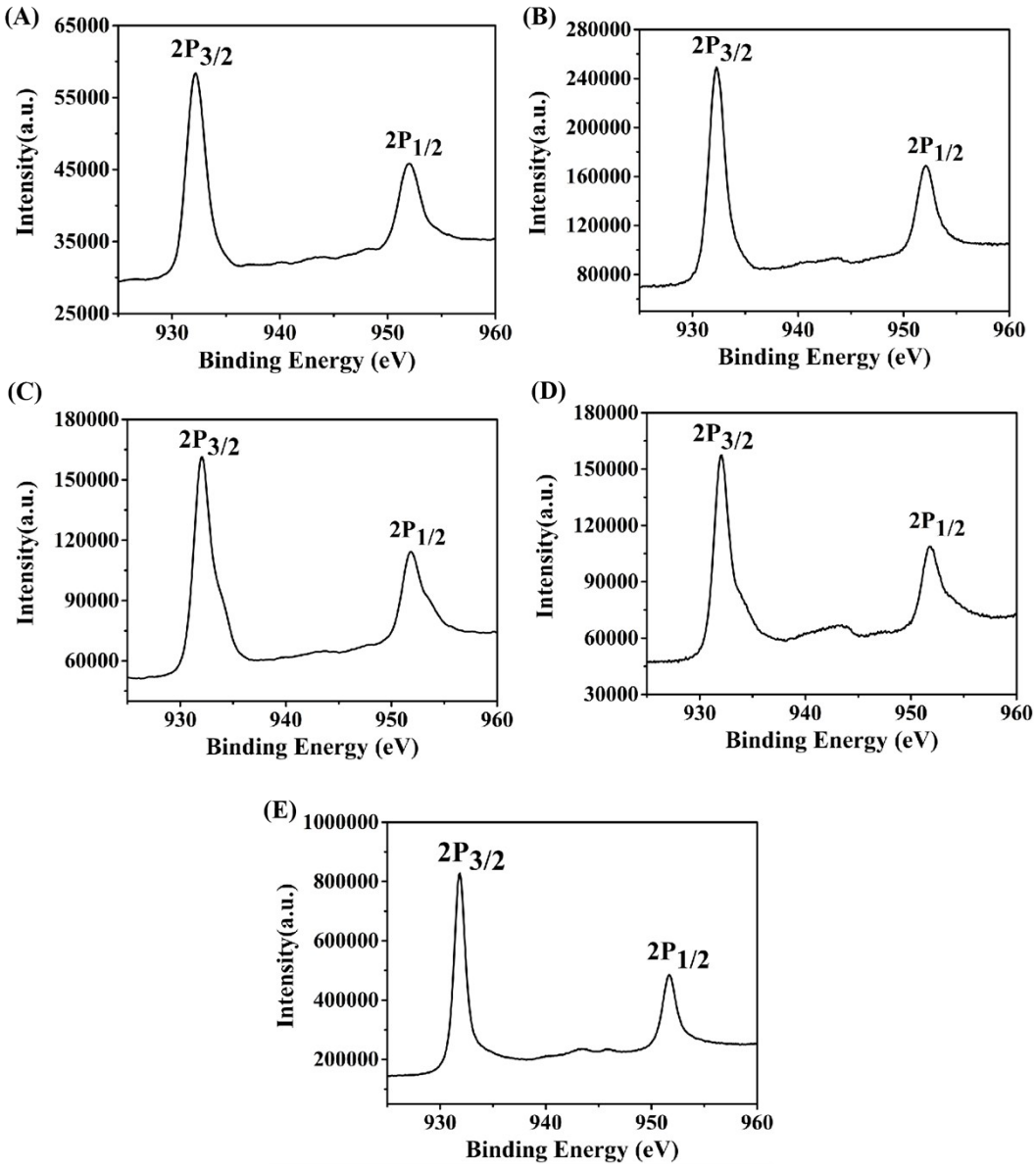

Fig. S1. XPS spectra obtained from different copper nanocluster (A-H: A-CuNCs, G-CuNCs, C-CuNCs, T-CuNCs, template free CuNCs), showing the 2p3/2 and Cu 2p1/2 peaks at 932.6 and 952.5 eV respectively indicating the presence of Cu(0)/Cu(I) sate.

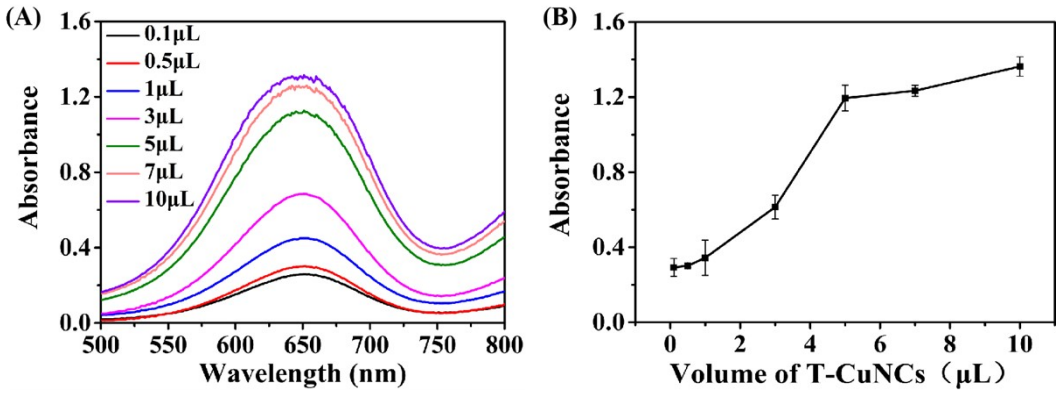

Fig. S2. Effect of T-CuNCs volume on the catalytic activity of T-CuNCs; (A) The effect of T-CuNCs volume on ultraviolet absorption spectrum of the catalytic system; (B) The effect of the T-CuNCs volume on the absorbance value of the system at 652nm.

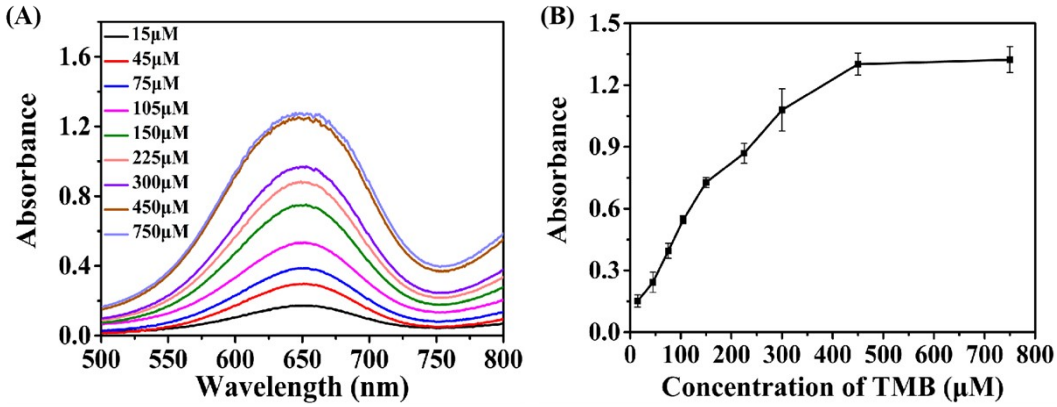

Fig. S3. Effect of TMB concentration on the catalytic activity of T-CuNCs; (A) The effect of TMB concentration on ultraviolet absorption spectrum of the catalytic system; (B) The effect of the TMB concentration on the absorbance value of the system at 652nm.

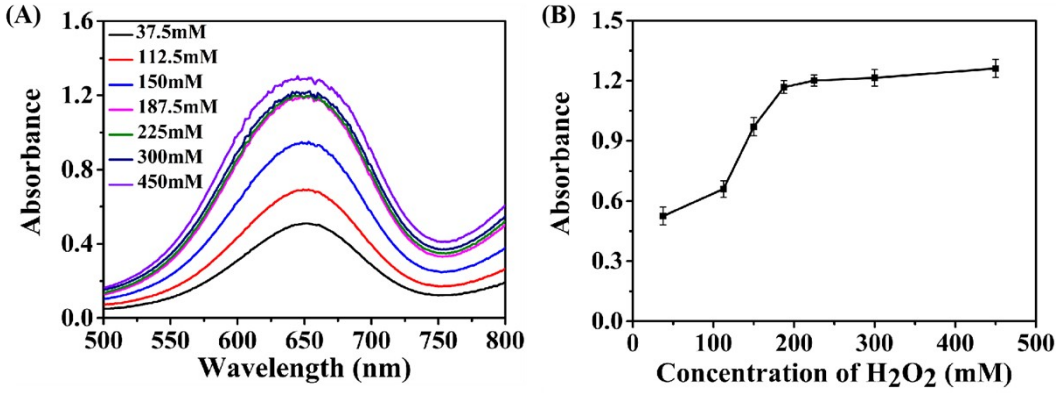

Fig. S4. Effect of H_2O_2 concentration on the catalytic activity of T-CuNCs; (A) The effect of H_2O_2 concentration on ultraviolet absorption spectrum of the catalytic system; (B) The effect of the H_2O_2 concentration on the absorbance value of the system at 652nm.

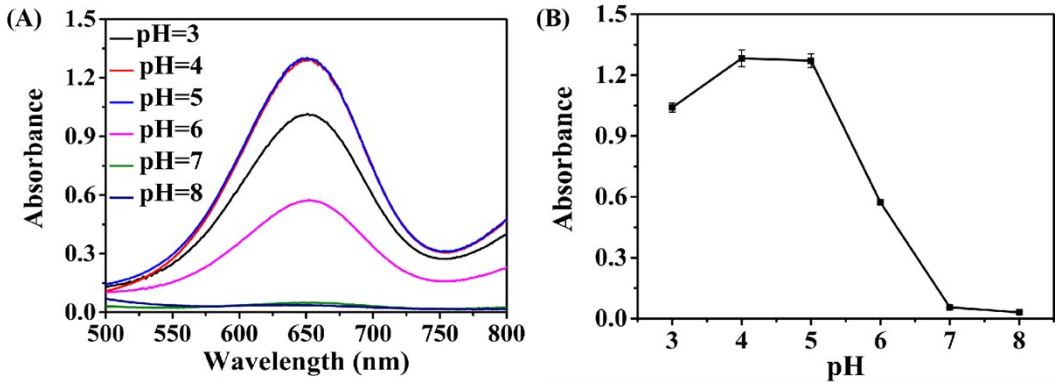

Fig. S5. Effect of pH on the catalytic activity of T-CuNCs; (A) The effect of pH on ultraviolet absorption spectrum of the catalytic system; (B) The effect of the pH on the absorbance value of the system at 652nm.

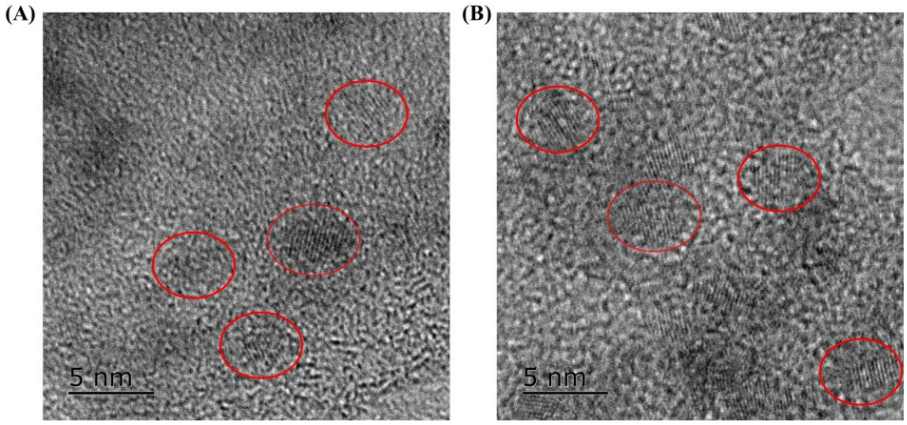

Fig. S6. TEM images of the effect of mercury ions on copper nanoclusters, (A) TEM of T-CuNCs；(B) TEM of T-CuNCs after added Hg^{2+}.

Table S1. Performance comparison of this work with other nanomaterials-based sensors for the detection of Hg^{2+}.

Materials	Linear range	LOD	Ref.
AuNPs	25–750 nM	50 nM	1
AgNPs	10–100 μM	2.2 μM	2
TPDT-AgNPs	/	5 μM	3
TPDT-gold nanorods	1–7 μM	0.317 μM	4
DNA-AuNPs	0–5 μM	0.5 μM	5
MoS_2 nanosheets	2–200 μM	0.5 μM	6
SiO_2/AgNPs	0–40 μM	5 μM	7
Cu@AuNPs	10–500 nM, 500–2500 nM	10 nM	8
MT-CuNCs	97 nM–2.325 μM, 3.10 μM–15.59 μM	43.8 nM	9
DNA-silica nanoparticles	0–500 nM	20 nM	10
CuNCs	0-350 μM	11.67 μM	This work

Reference

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