

**Electronic Supplementary Information**

**Sub-nanometer sized copper clusters: one-step synthesis and  
electrochemical detection of glucose**

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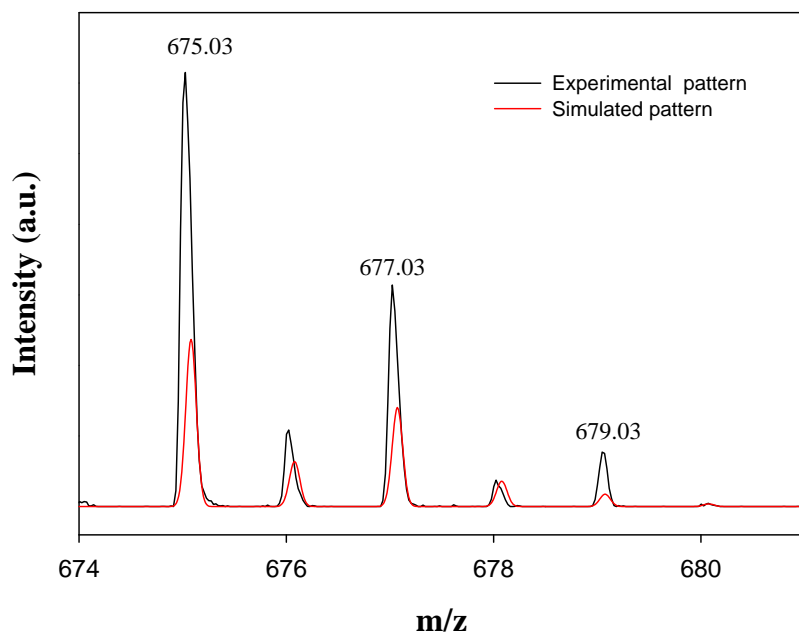
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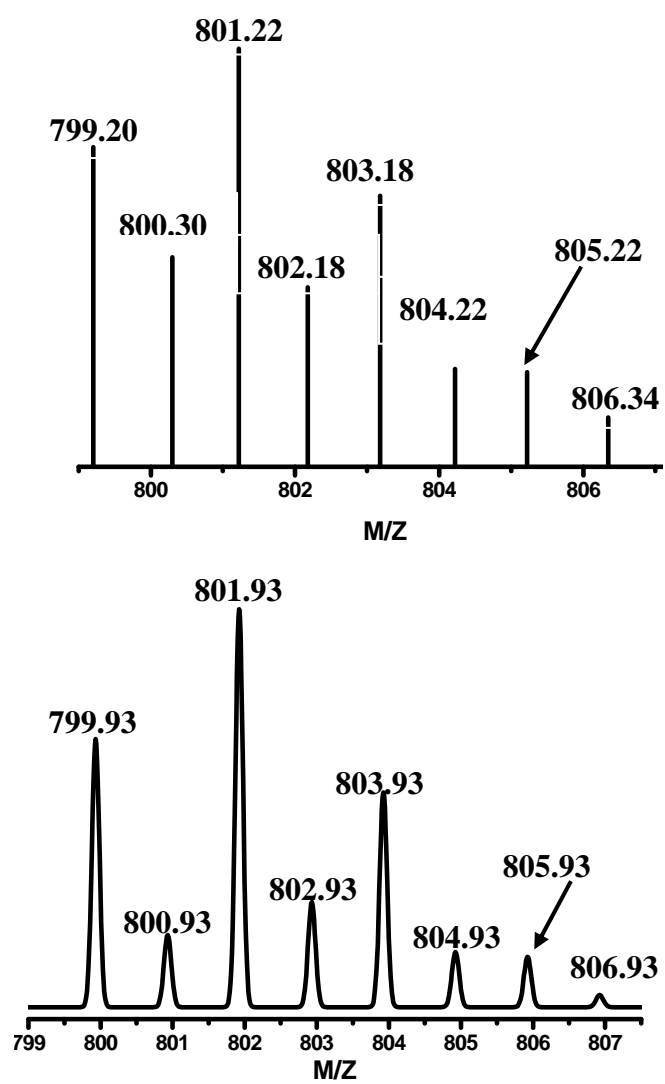
## Supplementary Results



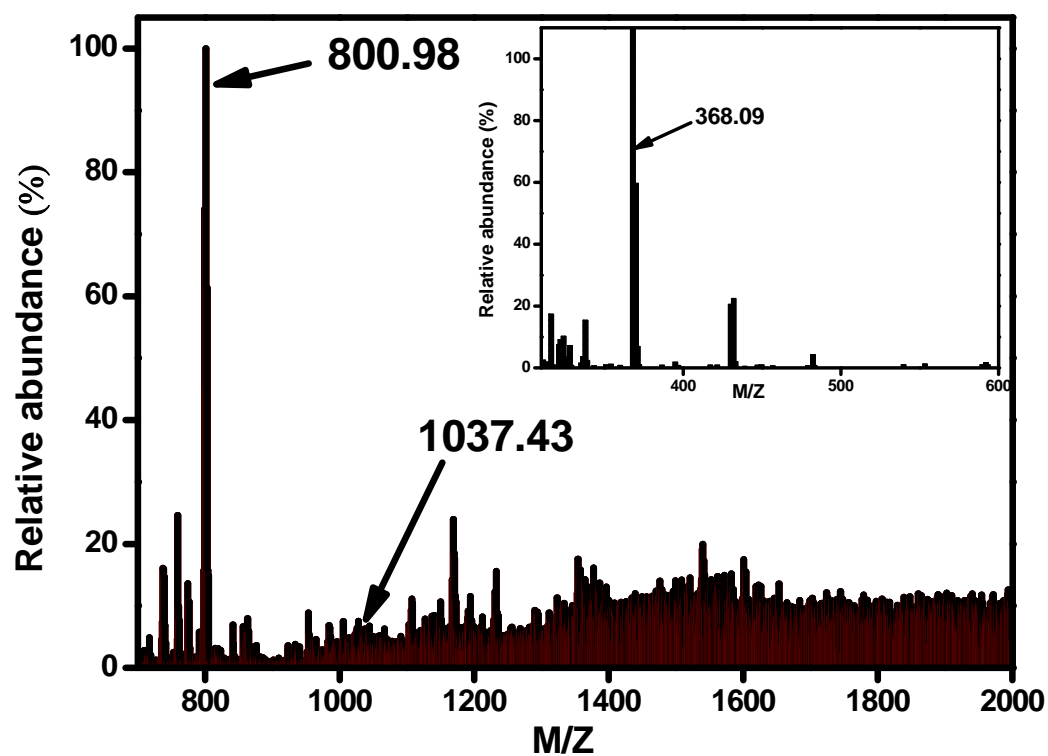
**Fig. S1** Digital photographs of the as-synthesized Cu nanocluster (left: solution; right: solid)



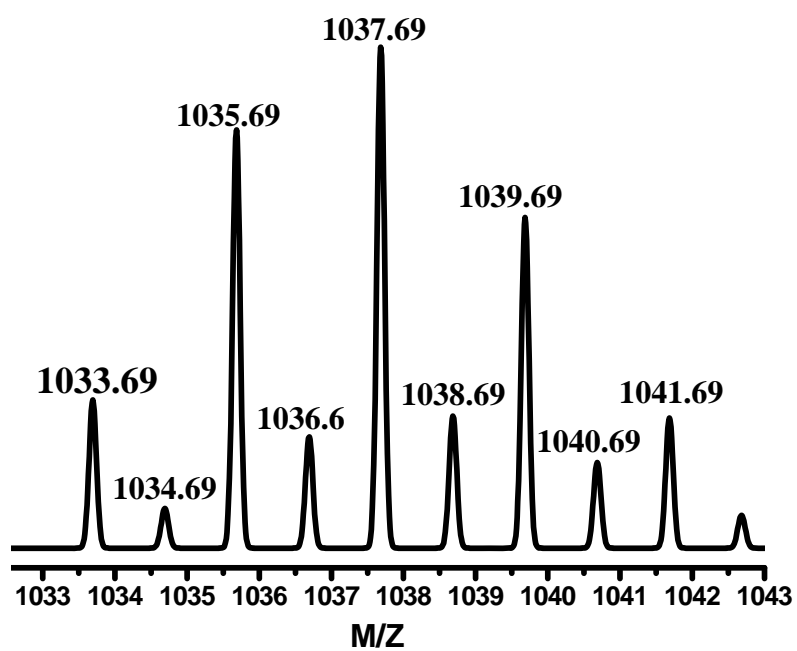
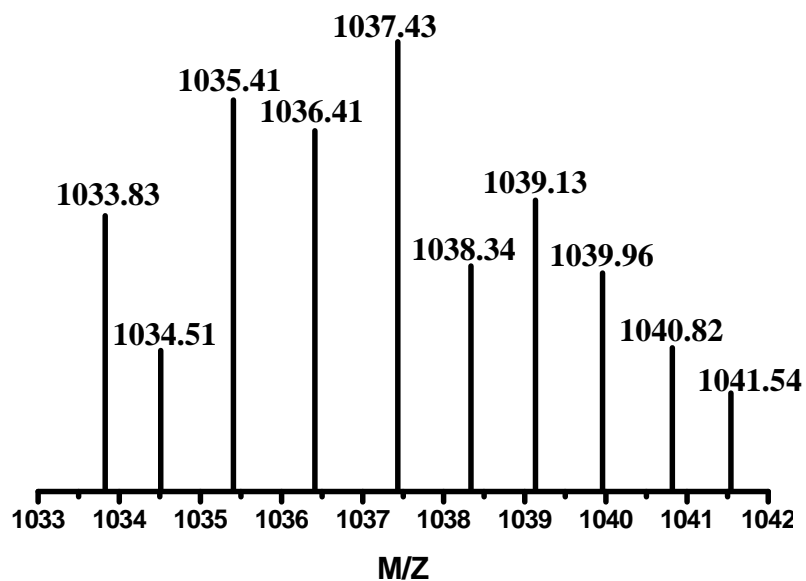
**Fig. S2** The experimental (black curve) and simulated (red curve) isotopic patterns of [Cu(SG)<sub>2</sub>-H]



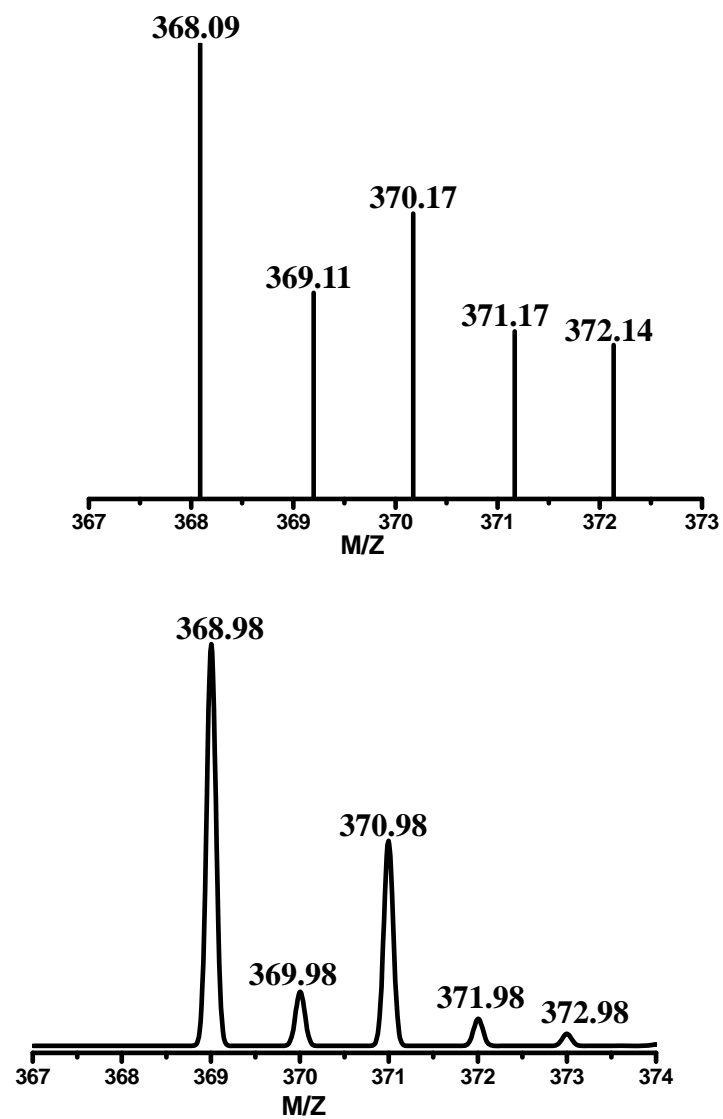
**Fig. S3** The experimental (top) and simulated (bottom) isotopic patterns of  $[\text{Cu}_3(\text{SG})_2]^+$ .



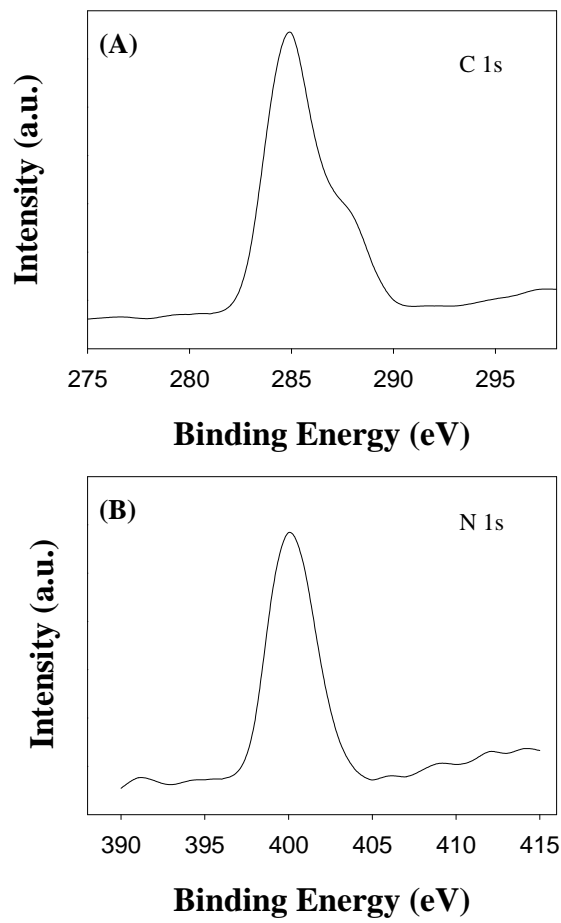
**Fig. S4** The negative-mode ESI-MS of the as-synthesized Cu nanoclusters. Inset displays the lower mass region of the Cu clusters.



**Fig. S5** The experimental (top) and simulated (bottom) isotopic patterns of  $[\text{Cu}_6(\text{SG})_2+2\text{Na}]^+$ .

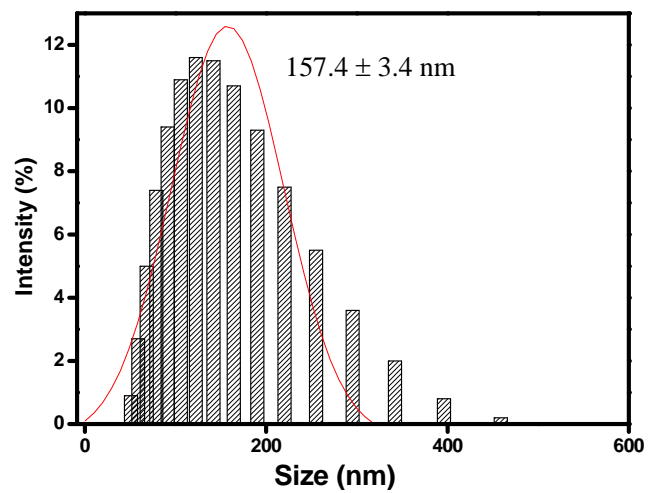


**Fig. S6** The experimental (upper curve) and simulated (down curve) isotopic patterns of  $[\text{Cu}(\text{SG})-\text{H}]^-$ .

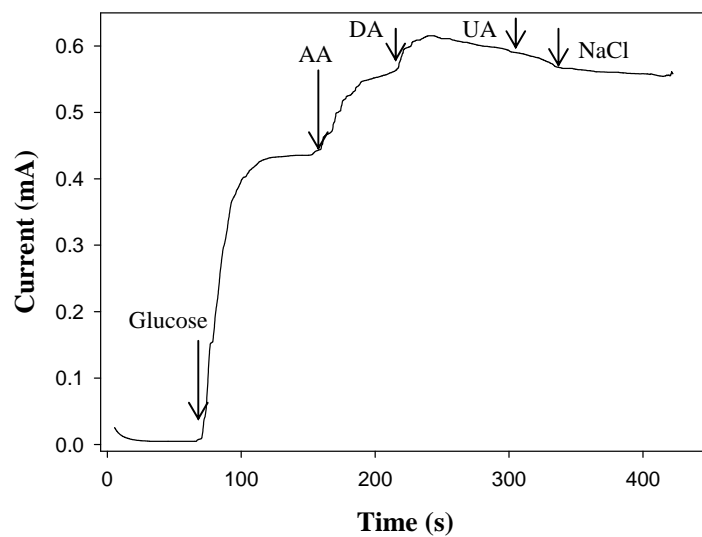


**Fig. S7** XPS spectra of C 1s (A) and N 1s (B) of the as-prepared Cu nanoclusters.



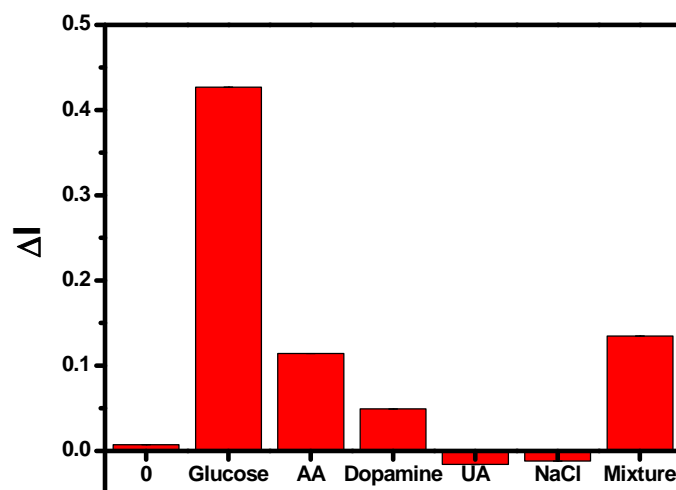


**Fig. S8** Dynamic light scattering (DLS) measurement for the as-prepared Cu nanoparticles.



**Fig. S9** Amperometric responses of the Cu NCs/TiO<sub>2</sub>/ITO to the addition of different analytes in 0.1 M KOH.

20 mM glucose, 10 mM ascorbic acid (AA), 10 mM dopamine (DA), 10 mM uric acid (UA) and 10 mM NaCl at 0.5 V.



**Fig. S10** The bar diagram from amperometric responses of the Cu NCs/TiO<sub>2</sub>/ITO to the addition of different analytes and their mixture in 0.1 M KOH. 20 mM glucose, 10 mM ascorbic acid (AA), 10 mM dopamine (DA), 10 mM uric acid (UA) and 10 mM NaCl at 0.5 V.