

Electronic Supplementary Information

**Dual-modal fluorescence and light-scattering sensor based on
water-soluble carbon dots for silver ions detection**

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Table S1 Comparison of analytical data of the methods for the detection of Ag⁺.

Method	Linear range (nM)	Detection limit (nM)	References
Flame atomic absorption spectrometric detection	-	8.24	31
Visual detection	1000-170000	1000	32
Colorimetric detection	5000-40000	1000	33
ICP-MS ^a	1.85-4630	37	34
CdS-based fluorescence detection	100-1500	68	35
AgNCs-based fluorescence detection	50-500	10	36
Resonance Rayleigh scattering	167-2333	160	37
CDs-based dual-modal fluorescence detection	100-265000	50	This study
CDs-based dual-modal LS detection	10-4000	2	This study

^a ICP-MS: inductively coupled plasma–mass spectrometry

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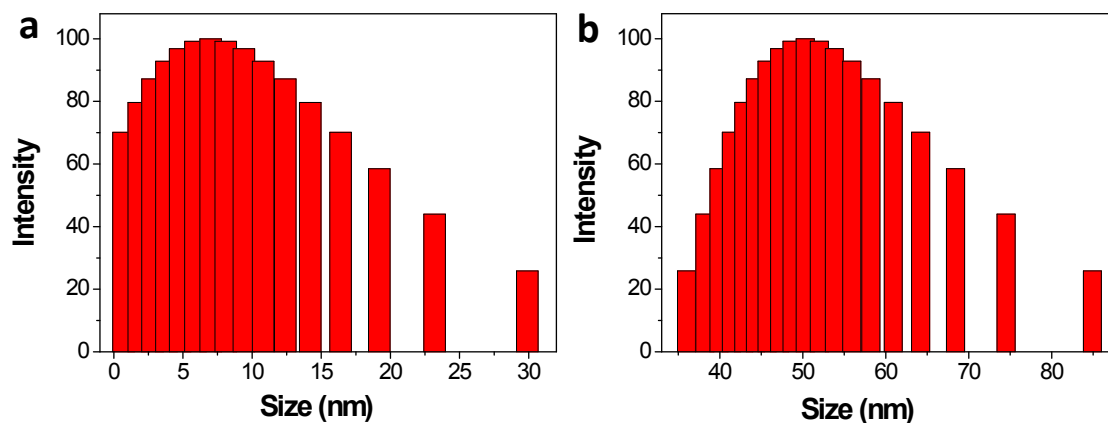


Figure S1 The present size distributions of prepared CDs (a) or CDs/Cys system reaction with Ag⁺ ions (b). Conditions: The concentration of cysteine is 0.5 mM; The concentrations of Ag⁺ are 265 μM; BR buffer (pH 7.0).

DLS assays suggest that the hydrated diameter of pre-prepared CDs is 7.0 nm (Fig. S1a). After the addition of cysteine (Cys), the hydrated diameter does not turn up distinct increase. However, upon reacted with Ag⁺ ions, the average hydrated diameter of CDs/Cys system appears significant enhancement with approximately 50.3 nm (Fig. S1b). The results of DLS experimental assays are consistent with those of TEM assays.