Supplementary Materials for:

Dual-excitation and dual-emission carbon dots for Fe^{3+} detection, temperature sensing, and lysosome targeting

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MTT assay

For the cell cytotoxicity text, HeLa cells were first plated on a Costar 96-well tissue-culture cluster and cultured at 37°C with 5% CO_2 in air for 3 h to adhere cells onto the surface. The well without cells and treatment with CDs was taken as a zero set. The medium was then changed with 100 μL of fresh DMEM supplemented with 10% FBS containing CDs, and the cells were allowed to grow for another 24 h. At least five parallel samples were performed in each group. Cells without treatment with CDs were taken as a control. After adding 20 μL of 5.0 mg/mL MTT reagent into individual well, the cells were further incubated for 4 h, followed by removing the culture medium with MTT, and then 150 μL of DMSO was added. The resulting mixture was shaken for ca. 10 min at room temperature. The OD of the mixture was measured at 490 nm with a SunRisemicroplate reader (Tecan Austria GmbH, Grödig, Austria).The cell viability was estimated using the equation of Cell Viability (%) = $(OD_{Treated}/OD_{Control}) \times 100\%$, where $OD_{Control}$ and $OD_{Treated}$ were obtained in the absence and presence of CDs, respectively.

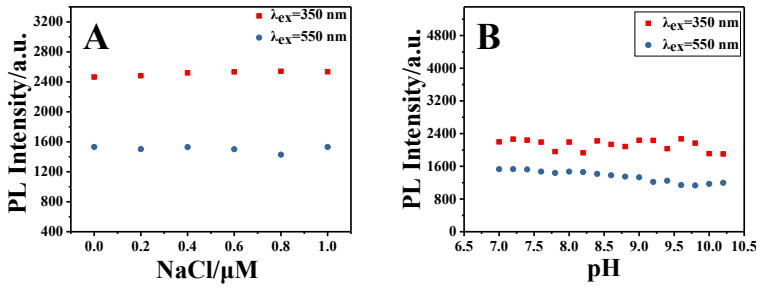

Fig. S1 (A) Effect of NaCl concentration on PL intensity of CDs. (B) Effect of pH on PL intensity of CDs.

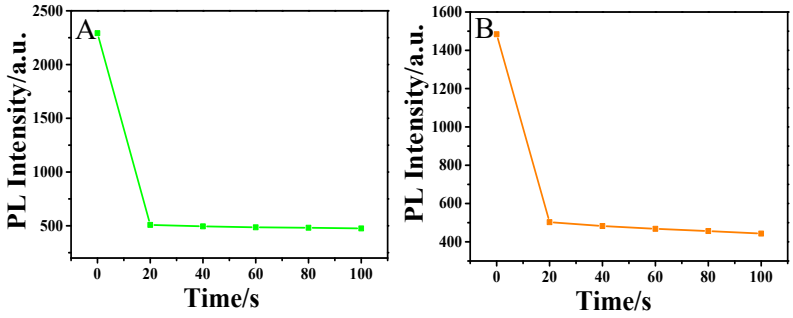

Fig. S2 (A)Time-dependence of PL intensity of CDs/Fe^{3+} under 350 nm excitation. (B) Time-dependence of PL intensity of CDs/Fe^{3+} under 550 nm excitation.

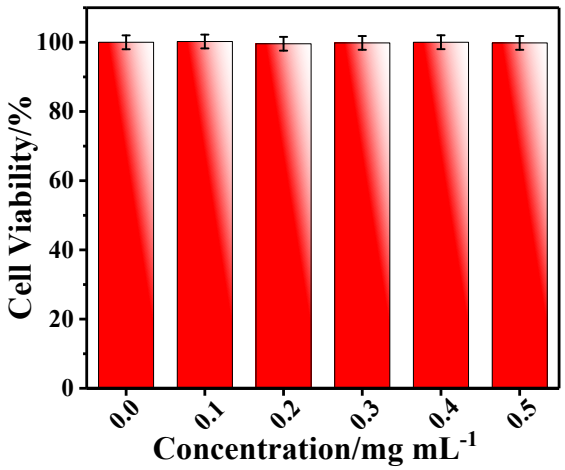

Fig. S3 Cytotoxic effect of obtained CDs on HeLa cells.

Table S1 Comparison of different fluorescent CDs based probes for Fe^{3+} detection.

Starting material of synthesis	Linear scope	Detection limit	Ref.
snake gourd peel extract	10–100 μM	398 nM	[1]
chloroplast dispersions	1.0–100.0 μM	300 nM	[2]
dopamine	0–80 μM	63 nM	[3]
momordica charantia	0–150 μM	175 nM	[4]
citric acid, ethylenediamine, zinc acetate	0.05–125 μM	27 nM	[5]
p-phenylenediamine, 5-aminosalicylic acid	0–400 μM	7 nM	This work

References

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