

## Supporting Information for

### **A magnetic/fluorometric bimodal sensor based on carbon dots-MnO<sub>2</sub> platform for glutathione detection**

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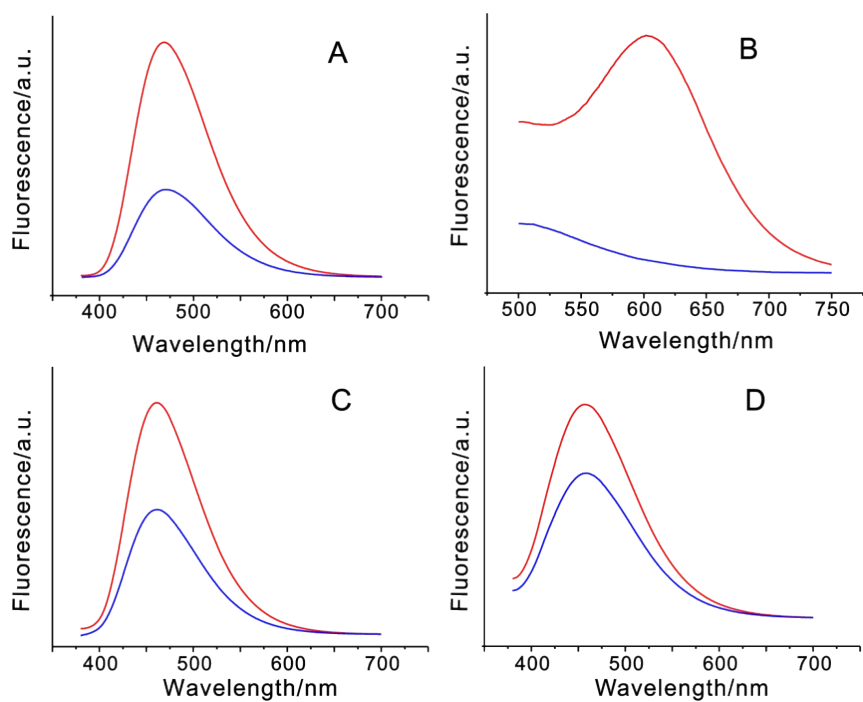
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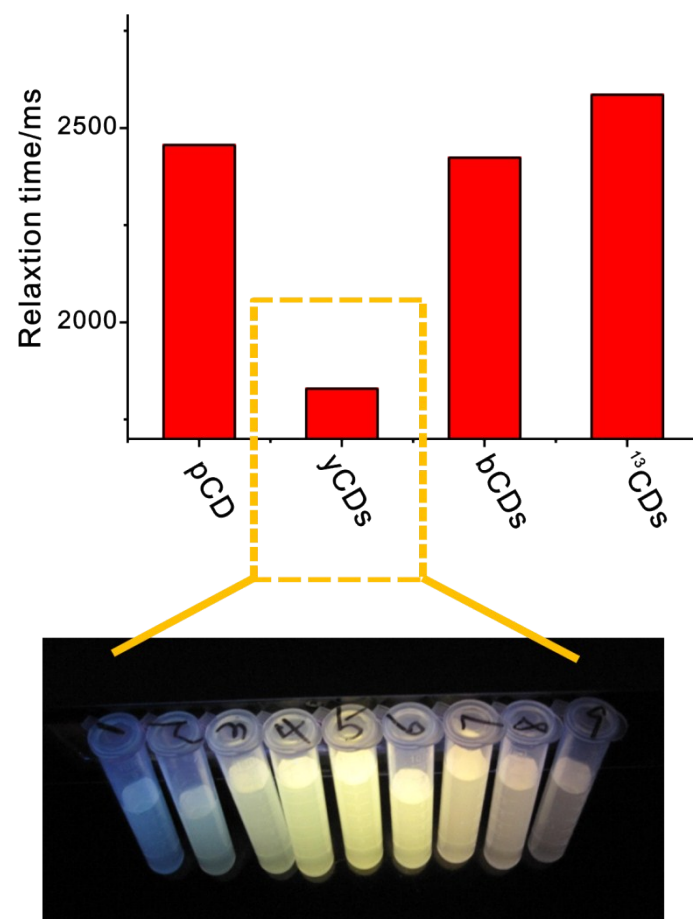
## Results and discussions

**Table S1.** The zeta-potentials of MnO<sub>2</sub> and CDs.

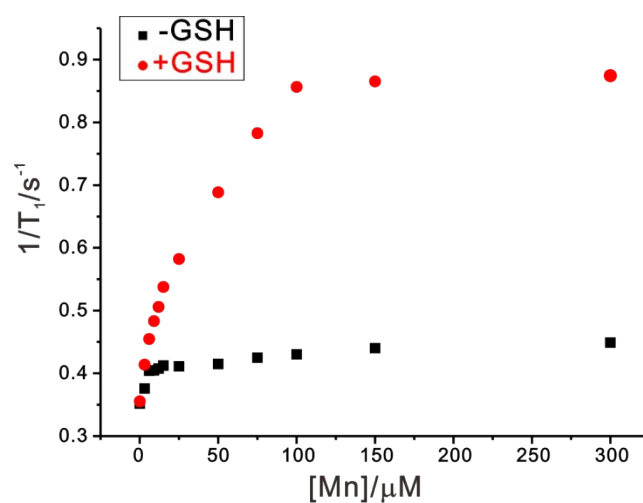
Materials	$\xi$ -potential
MnO <sub>2</sub>	−19.7 mV
pCDs	+5.58 mV
bCDs	−22.5 mV
<sup>13</sup> CDs	−32.2 mV
yCDs	+8.49 mV



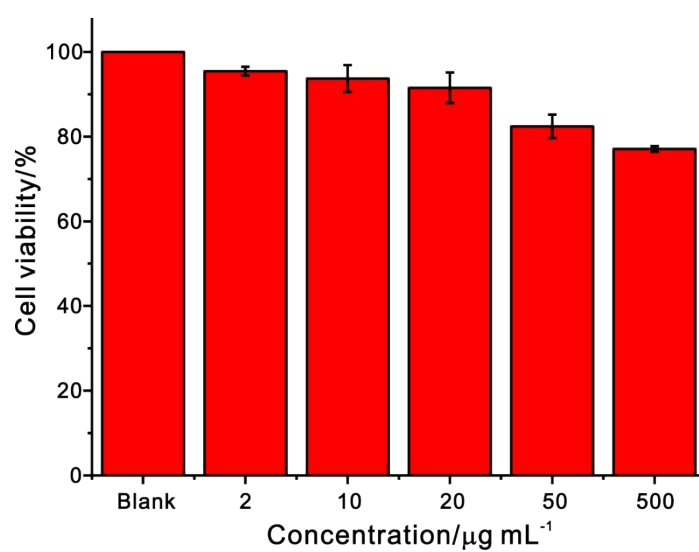
**Figure S1.** The fluorescence spectra of CDs (red lines), and CDs-MnO<sub>2</sub> (blue lines): (A) pCDs; (B) yCDs; (C) bCDs; (D) <sup>13</sup>CDs.



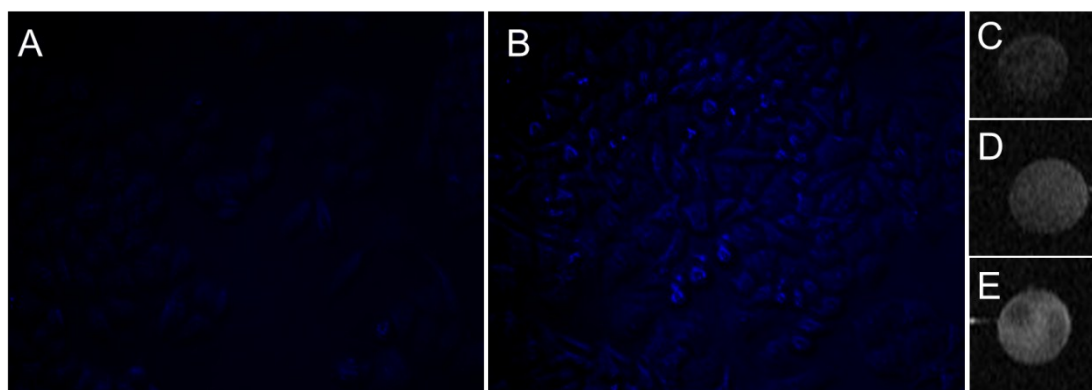
**Figure S2.** The longitudinal relaxation time of different kinds of CDs-MnO<sub>2</sub> platform. The fluorescent images of nine fractions separated from yCDs upon UV light excitation.



**Figure S3.** The  $1/T_1$  versus  $MnO_2$  concentration curves of pCDs- $MnO_2$  solution in the absence and presence of GSH.



**Figure S4.** Cell viability of HeLa cells incubated with pCD- $MnO_2$ . Data were presented as the mean  $\pm$  the standard deviation (SD).



**Figure S5.** The fluorescence images of (A) HeLa cells and (B) HeLa cells incubated with pCDs-MnO<sub>2</sub> (50 µg mL<sup>-1</sup>) for 4 h. Fluorescence images acquired with 325-375 nm excitation and 435-485 nm emission. (C) The MR images of pCD-MnO<sub>2</sub> solution. The MR images of cell lysis solution: (D) HeLa cells and (E) MCF-7 cells incubated with pCDs-MnO<sub>2</sub>.

Table S2. The GSH concentrations of HeLa cells and MCF-7 cells measured by GSH commercial assay kit and pCDs-MnO<sub>2</sub>. The cell lysis solutions were diluted by 20 times.

	GSH commercial assay kit (µM)	pCDs-MnO <sub>2</sub> in fluorescence mode (µM)	pCDs-MnO <sub>2</sub> in MR mode (µM)
HeLa cells	6.4	7.9	9.5
MCF-7 cells	7.6	8.8	11