Supplementary Information for

Preparation of carbon nanodots capped by polyethylene glycol as a multifunctional sensor for temperature and paracetamol

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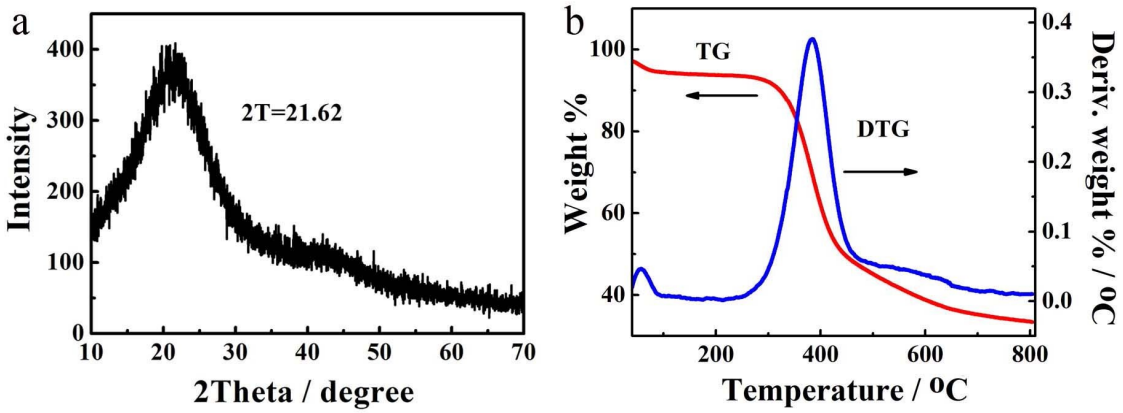

Fig. S1 XRD pattern (a) and TGA spectra (b) of PEG_2-CNDs.

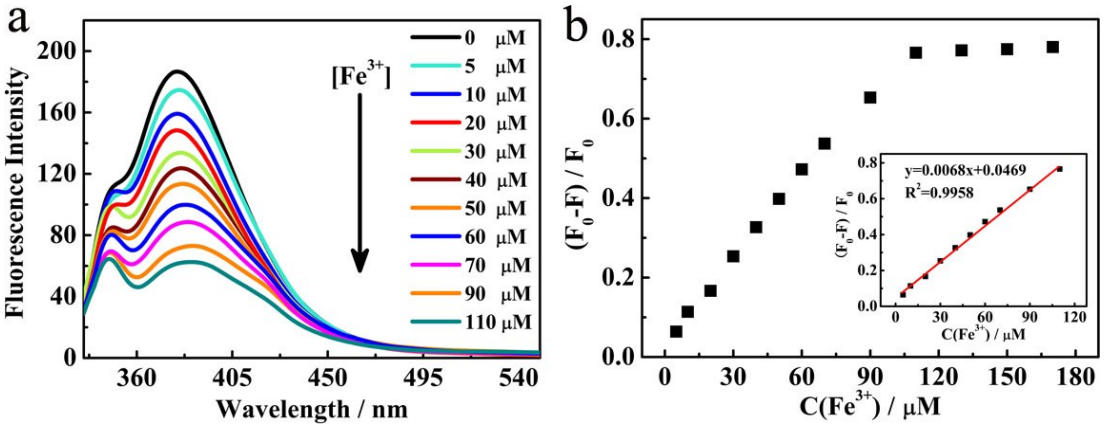

Fig. S2. (a) Fluorescence spectra of PEG_2-CNDs in the presence of different concentration of Fe^{3+} and the corresponding linear range (b). F and F_0 are the fluorescence intensities of PEG_2-CNDs in the presence and absence of Fe^{3+}, respectively.

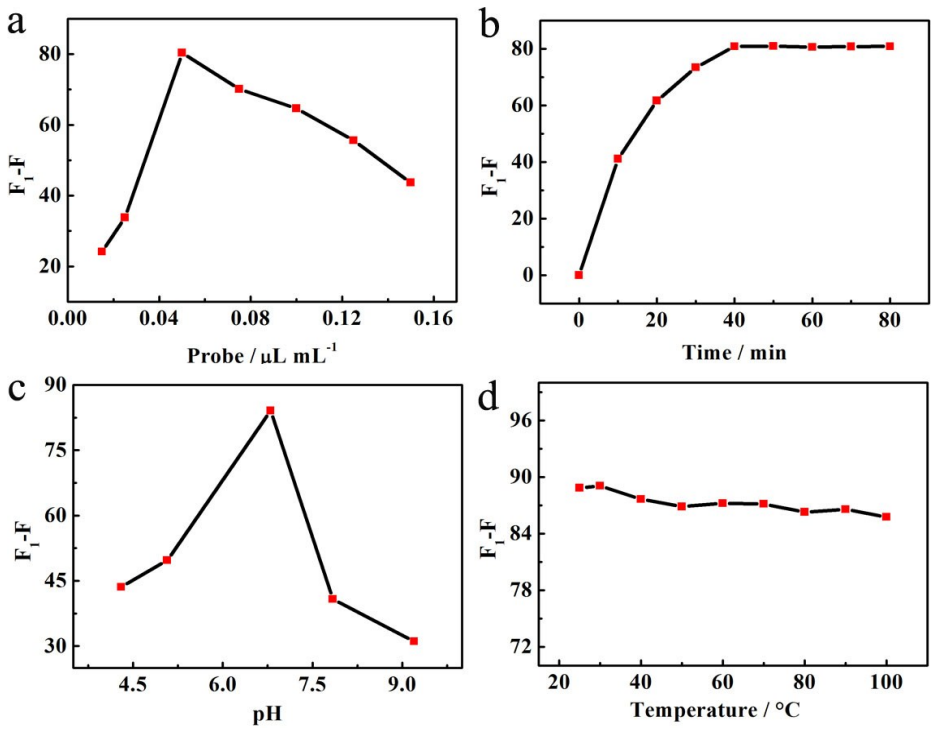

Fig. S3. Optimization of reaction conditions for detecting PAR based on PEG_2-CNDs-Fe^{3+} system (a, probe concentration; b, reaction time; c, pH value; d, temperature). The final concentrations of Fe^{3+} and PAR are 110 and 15 μM, respectively.

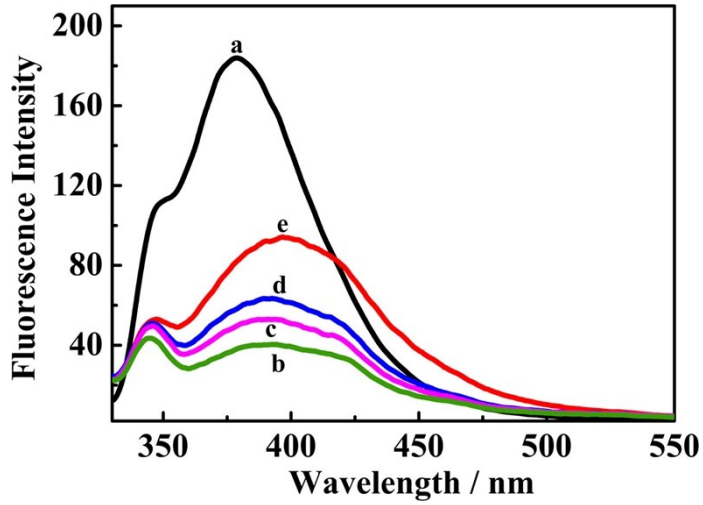

Fig. S4 Influence of addition order on the fluorescence response to PAR. The blank of PEG_2-CNDs is curve a. Order 1: PEG_2-CNDs are incubated with Fe^{3+} for 5 min without addition of PAR (curve b); order 2: PEG_2-CNDs are incubated with PAR for 5min and then Fe^{3+} is added (curve c); order 3: PEG_2-CNDs are pre-incubated with Fe^{3+} for 5min and then PAR is added (curve d); order4: PAR is pre-incubated with Fe^{3+} for 40 min and then PEG_2-CNDs are transferred into the mixture (curve e). The concentrations of PEG_2-CNDs, Fe^{3+} and PAR are 0.05 μL /mL, 110 μM and 15μM, respectively.

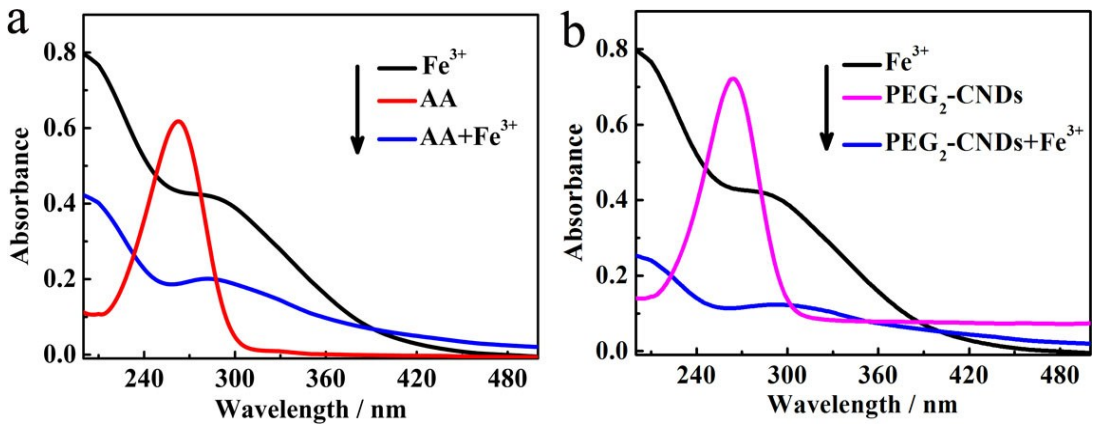

Fig. S5 UV-vis spectra of AA (a) and PEG_2-CNDs (b) in the absence and presence of Fe^{3+}. The concentrations of PEG_2-CNDs, Fe^{3+} and AA are 0.05 μL /mL, 110 μM and 0.23 μM, respectively.

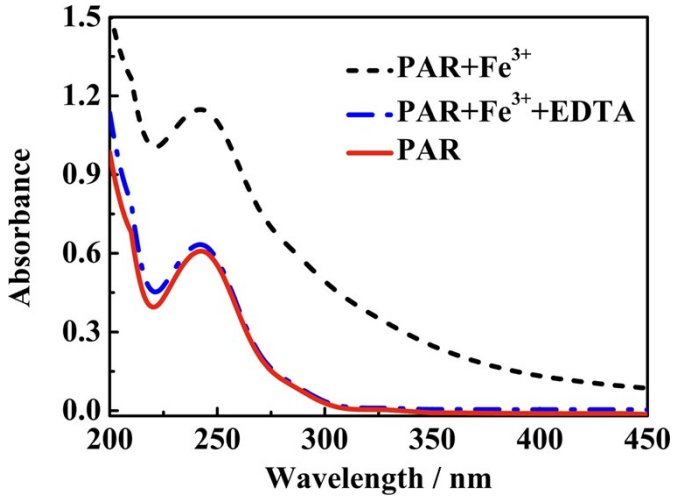

Fig. S6 UV-vis spectra of PAR (solid line), PAR+Fe^{3+} (dash line) and PAR+Fe^{3+}+ EDTA (dash dot line). The concentrations of PAR, Fe^{3+} and EDTA are 60 μM, 110 μM and 200 μM.

Table S1 Comparison of different methods for the determination of PAR

Methods	Linear range (μM)	LOD (μM)	Reference
HPLC	20.0-123.3	2.0	[1]
Electroanalysis	12.0-120.0	2.0	[2]
Colorimetry	6.0-38.0	1.8	[3]
Fluorescence	5.0-100.0	0.12	[4]
UV-spectrophotometry	□□20.0-100.0□□	Not mentioned	[5]
Fluorescence	0.03-30.0	0.013	This work

References

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