Electronic Supplementary Information

Lanthanide/nucleotide coordination polymer: An excellent host platform for encapsulating of enzymes and fluorescent nanoparticles to enhance ratiometric sensing

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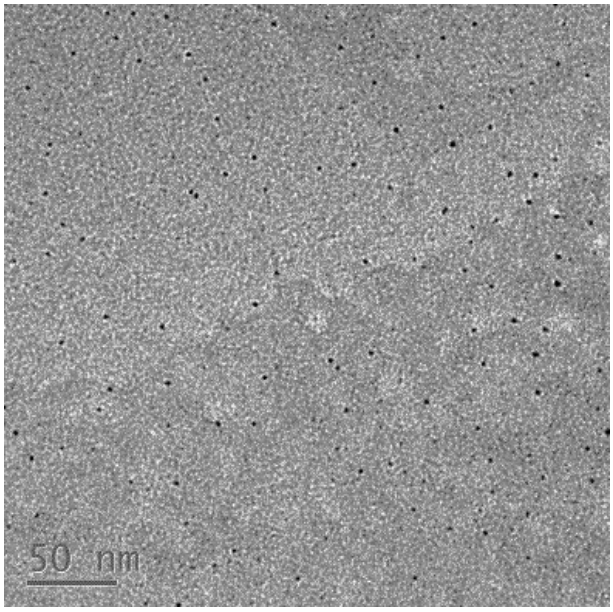

Figure S1. TEM image of fluorescent CDs.

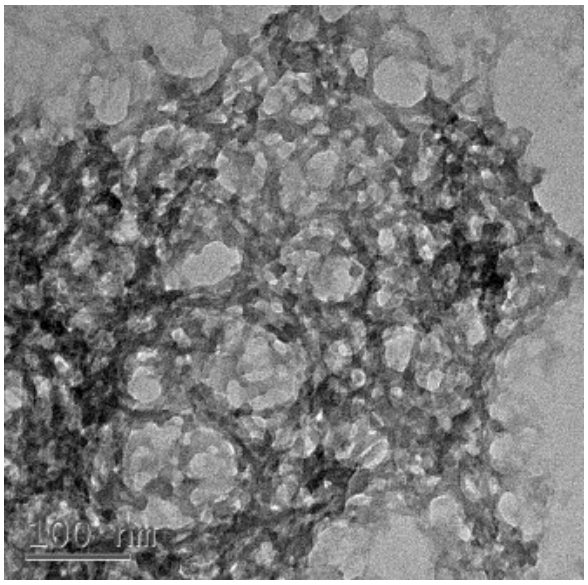

Figure S2. TEM image of AMP/Tb CPs.

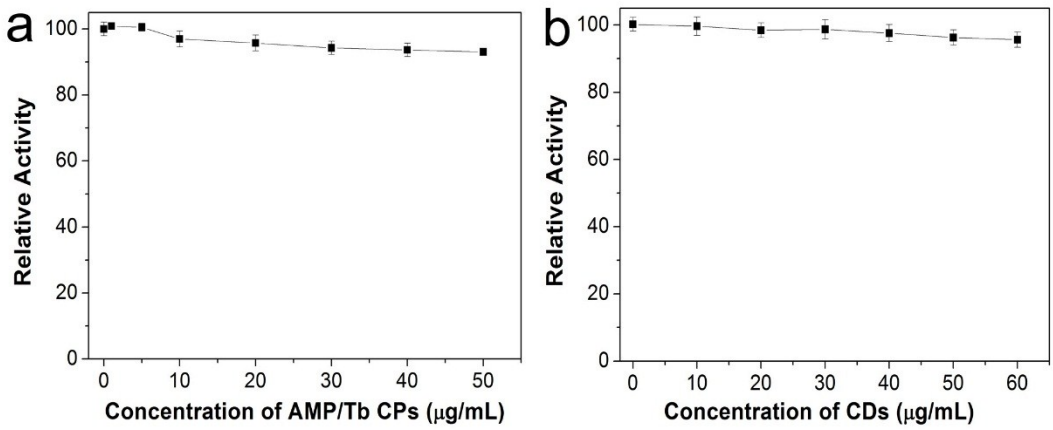

Figure S3. Effects of AMP/Tb CPs (a) and CDs (b) with different concentrations on the catalytic activity of free GOx.

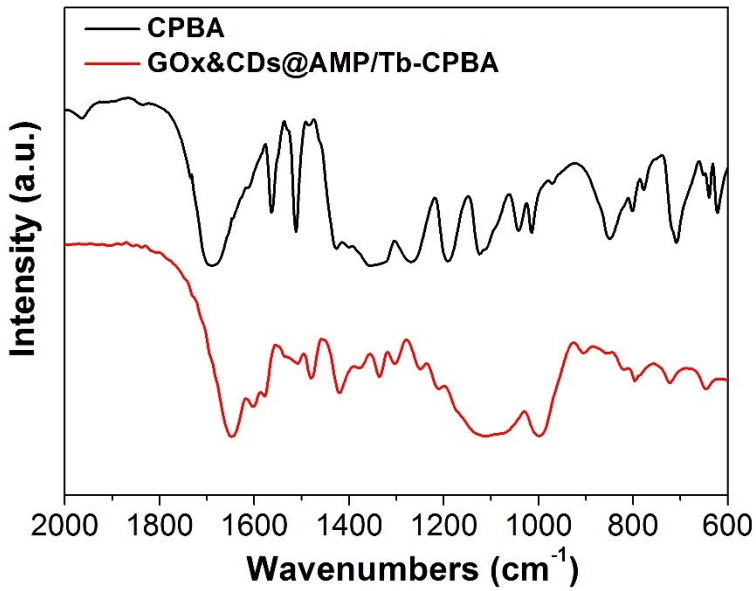

Figure S4. FTIR spectra of CPBA and GOx&CDs@AMP/Tb-CPBA.

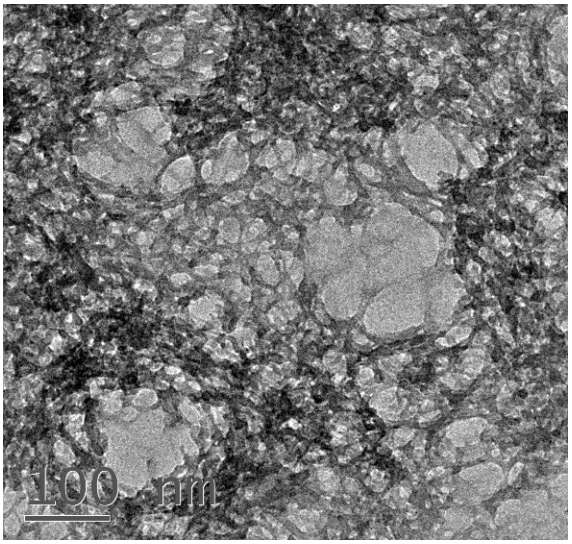

Figure S5. TEM image of GOx&CDs@AMP/Tb-CPBA.

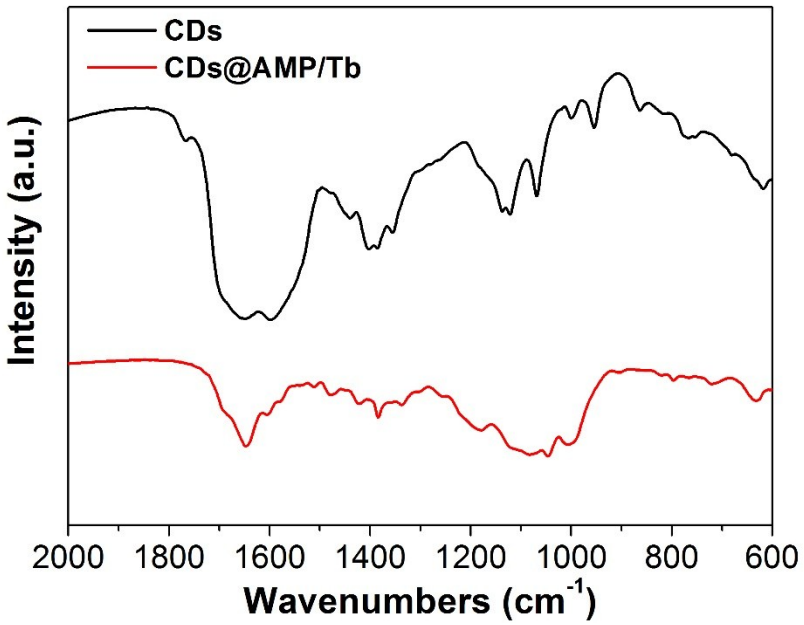

Figure S6. FTIR spectra of CDs and CDs@AMP/Tb.

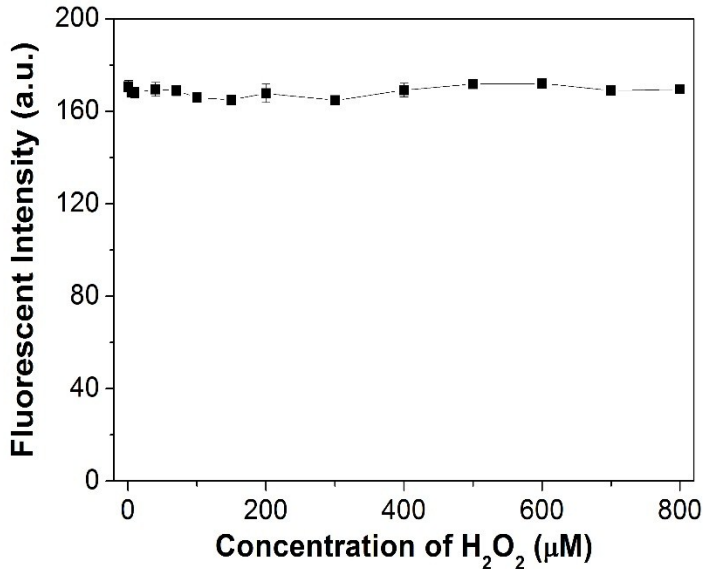

Figure S7. Fluorescent intensity of GOx&CDs@AMP/Tb-CPBA at 435 nm in the presence of H_2O_2 with different concentrations.

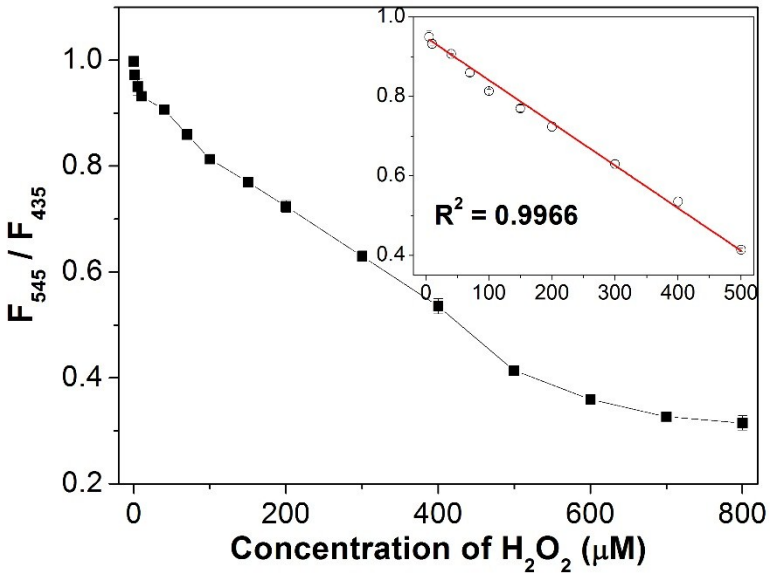

Figure S8. A plot of F_{545} / F_{435} versus the concentrations of H_2O_2 in the range of 0 to 800 μM. Inset is the linear calibration plots of F_{545} / F_{435} against H_2O_2 concentrations.

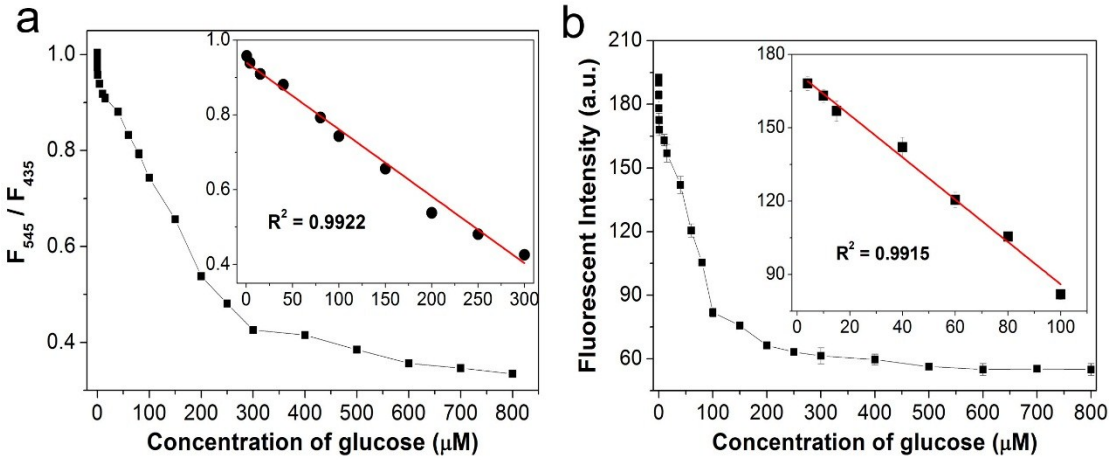

Figure S9. The plots of F_{545} / F_{435} of GOx&CDs@AMP/Tb-CPBA (a) and F_{545} of AMP/Tb-CPBA + GOx system (b) versus the concentrations of glucose in the range of 0 to 800 μM. Insets are the linear relationships of F_{545} / F_{435} (a) and F_{545} (b) with glucose concentrations, respectively.

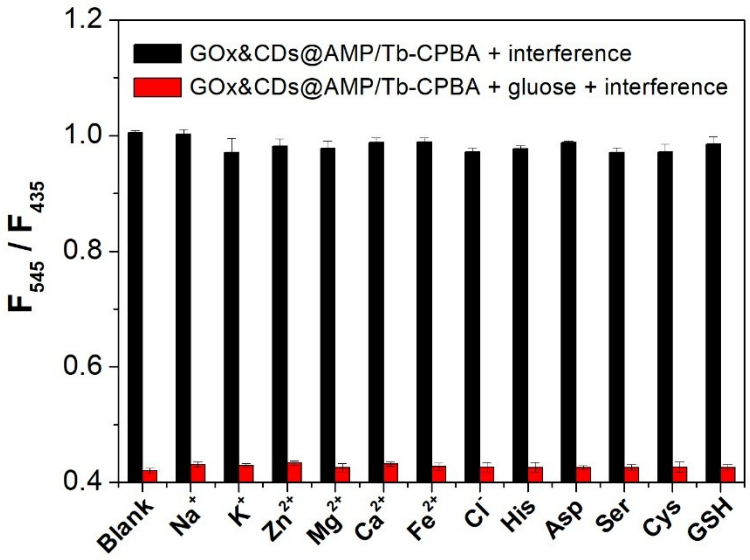

Figure S10. The changes of the F_{545} / F_{435} of GOx&CDs@AMP/Tb-CPBA in the presence of glucose and interferential substances (each 300 μM). Black bars represent the addition of interferential substance (300 μM); Red bars represent the addition of interferential substance (300 μM) and glucose (300 μM) together.

Table S1. Comparison of various fluorescent sensors for glucose detection

Sensors	Detection mode	Linear range (μM)	Detection limit (μM)	Analysis time (min)	Real sample	Ref.
Upconversion nanoparticles	Single emission	7 - 340	2.3	32	Serum	1
Ag@CDs composite	Single emission	7 - 20	1.5	30	No	2
BSA-Au cluster	Single emission	10 - 500	5	35	Serum	3
Boron-doped carbon quantum dots	Single emission	8 - 80	8	30	No	4
Lanthanide coordination polymers	Single emission	0.1 - 100	0.065	60	Serum	5
Conjugated polymer + CdTe/CdS QDs	Ratiometric fluorescence	100 - 5000	50	180	Serum	6
Lysozyme-AgNC	Ratiometric fluorescence	2 - 500	0.6	20	No	7
Graphitic carbon nitride	Ratiometric fluorescence	10 - 100	0.4	50	Serum	8
Lipopolymers	Ratiometric fluorescence	300 - 1000	10	150	Serum	9
GOx&CDs@AMP/Tb-CPBA	Ratiometric fluorescence	0.5 - 300	0.08	6	Serum	This work

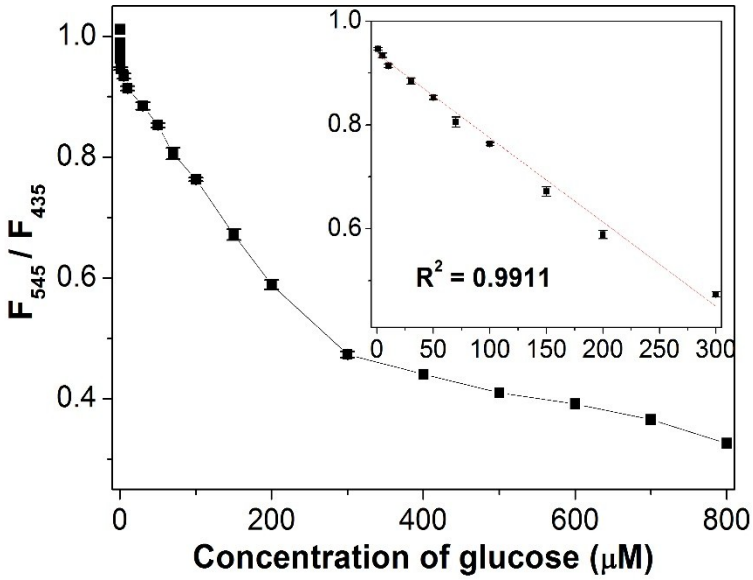

Figure 11. A plot of F_{545} / F_{435} of GOx&CDs@AMP/Tb-CPBA versus the concentrations of glucose in serum (0 to 800 μM). Inset is the linear calibration plots of F_{545} / F_{435} against glucose concentrations in serum.

References

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