Supplementary Information

Quantum Dot—Phenanthroline Dyads: Detection of Double-Strand DNA Using a Photoinduced Hole Transfer Mechanism

Lu Zhang, Kao Zhu, Tao Ding, Xianyun Hu, Qingjiang Sun*, and Chunxiang Xu

Table S1. Sequence of the synthetic dsDNA (DNA-1)

5'- GTAGCAGCACGTAAATATTGGCGTGACTGGAGTTCCTTGGCACCAAGCAGAAG CATCGTCGTGCATTTATAACCGCACTGACCTCAAGGAACCGTGGTTCGTCTTC
ACGGCATACGAGATATTGGCGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA TGCCGTATGCTCTATAACCGCACTGACCTCAAGGAACCGTGGGCTCTTAAGGT- 3'

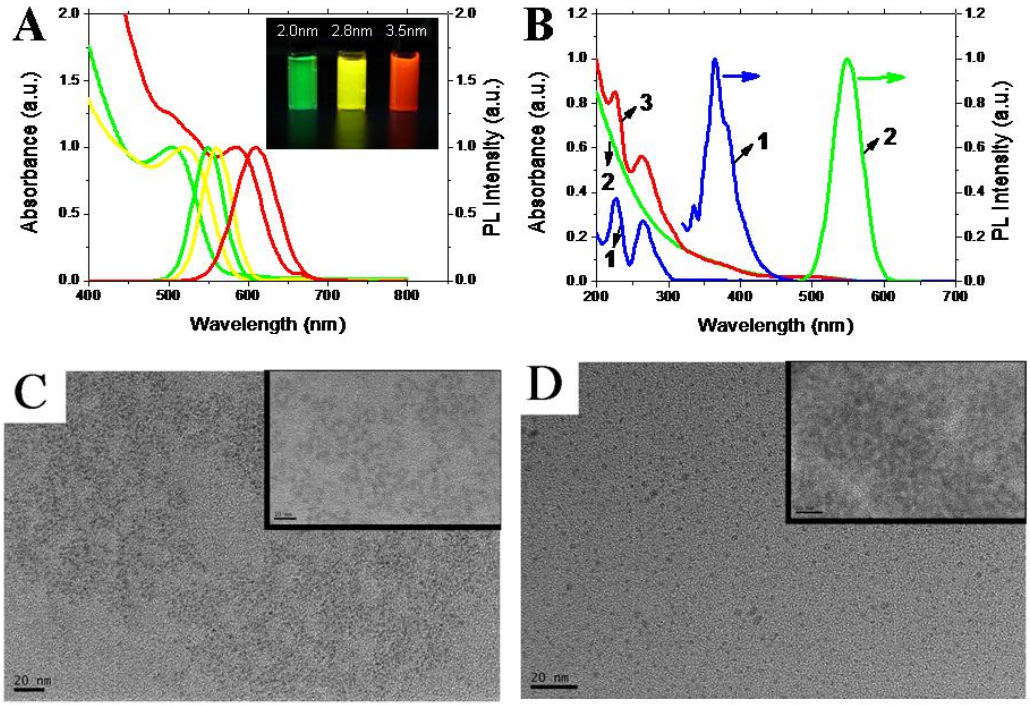

Figure S1. (A) Normalized UV-Abs and PL spectra of three-coloured QDs in aqueous solution. inset: photographs of aqueous solution of three-coloured QDs with diameters of 2.0 nm, 2.8 nm, and 3.5 nm (from left to right); (B) UV-Abs and PL spectra of 10 μmol L^{-1} Phen (1), 1.0 μmol L^{-1} CdTe QDs (2), and QD-Phen (3) (1.0 μmol L^{-1} QDs: 10 μmol L^{-1} Phen); (C) TEM images of CdTe QDs with a diameter of 2.0 nm; (D) TEM images of CdTe QDs with a diameter of 2.8 nm. Inset: HRTEM images.

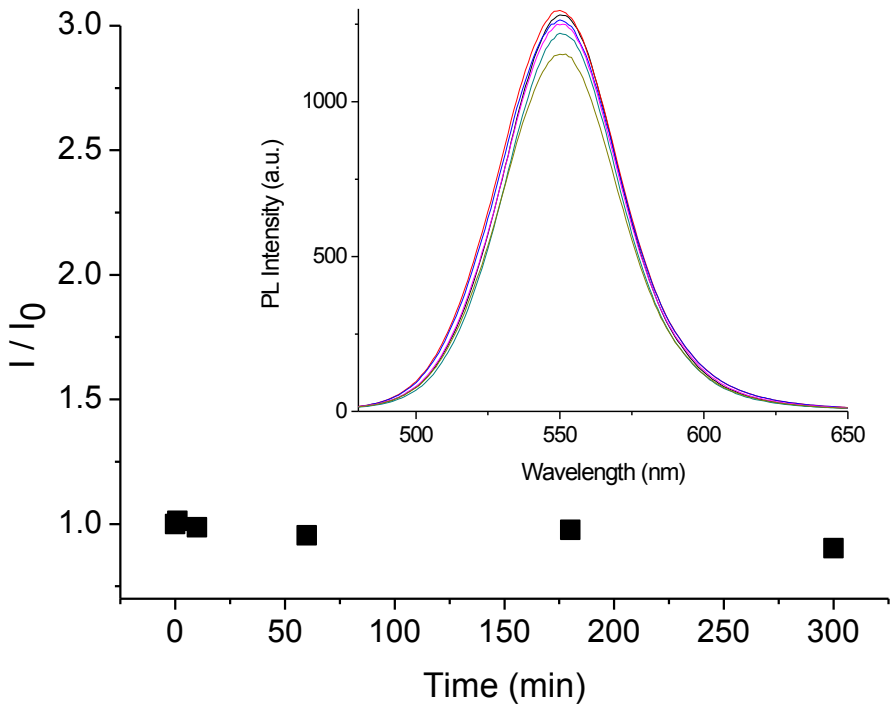

Figure S2. The relationship between I/I_0 (I and I_0 are the PL intensity of 2.0 nm CdTe QDs in the presence/absence of Phen, respectively) and the incubation time. Inset: the evolution of PL spectra of QDs with the incubation time. Incubation time: 0, 1, 10, 60, 180, 300 min.

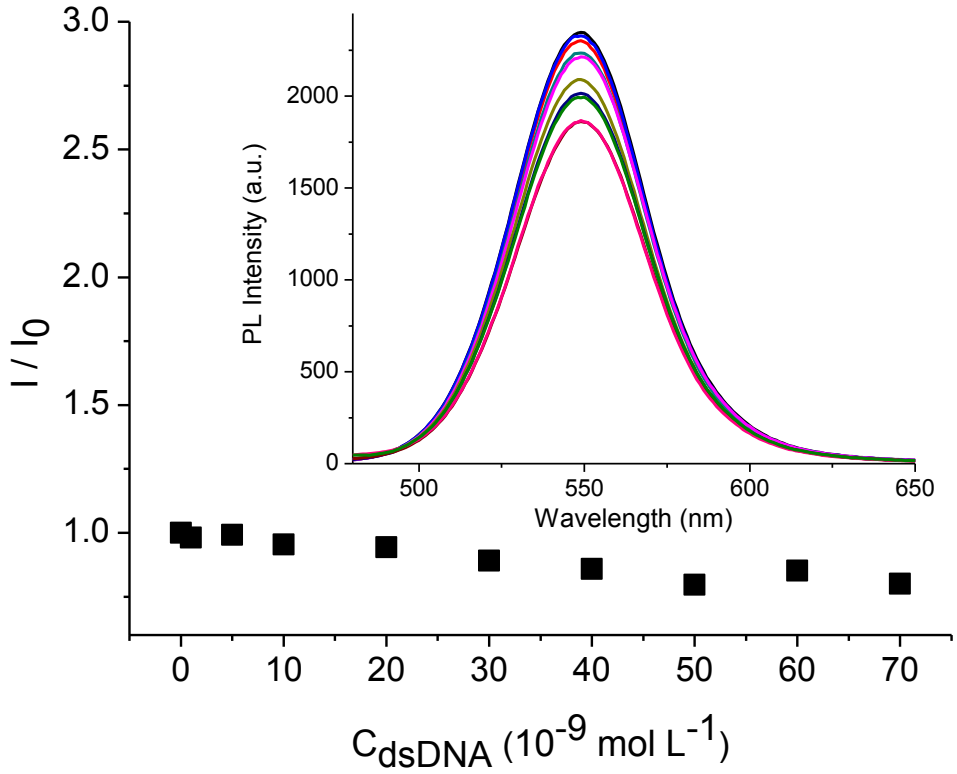

Figure S3. Relationship between I/I_0 (I and I_0 are the PL intensity of CdTe QDs in the presence/absence of dsDNA, respectively) and the dsDNA concentration. Inset: the evolution of QDs PL with the dsDNA concentration. C_{dsDNA}: 0, 1, 5, 10, 20, 30, 40, 50, 60, 70 nmol L^{-1}.

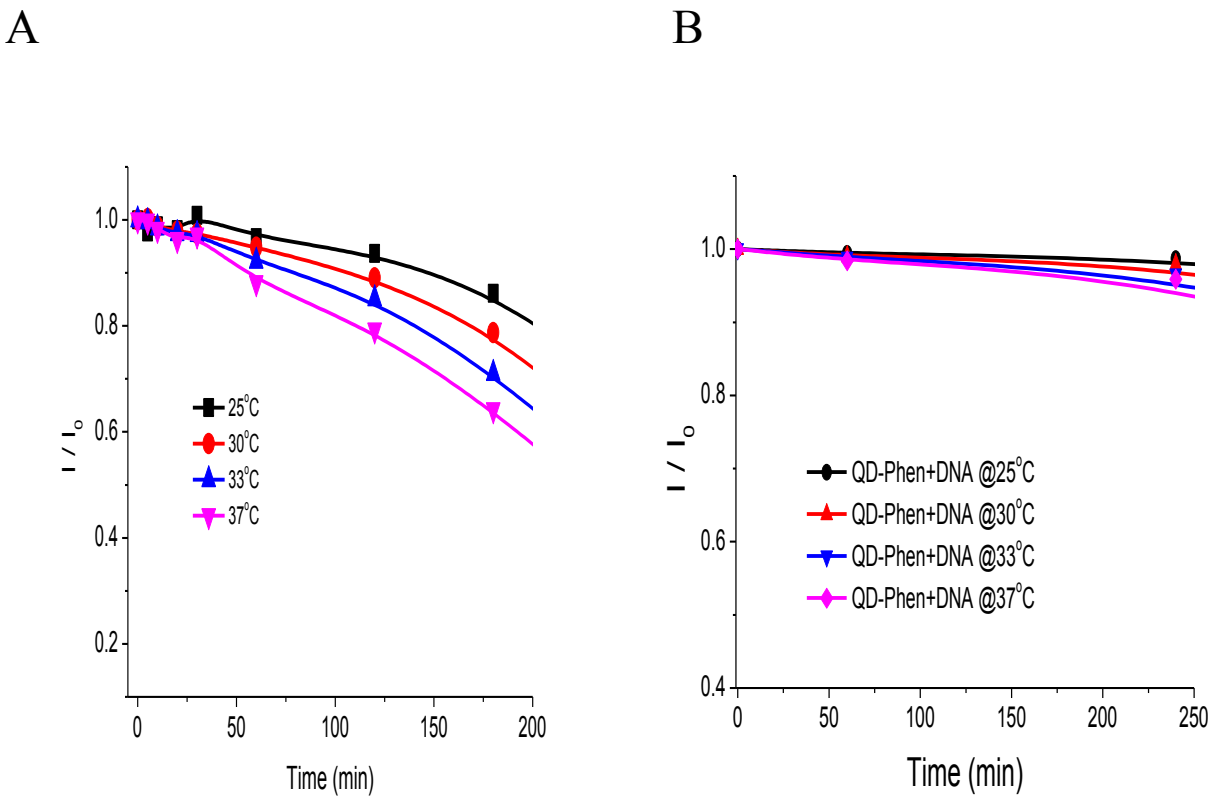

Figure S4. Evolution of the relative PL intensity (I/I_0) of (A) CdTe QDs and (B) CdTe-Phen with dsDNA with respect to time at different temperatures.