

Supplementary materials

Table S1. Sequences of oligonucleotides used in this study.

Table S2. Effect of co-existing substances on the RTP intensity of 50 nM RNA.

Fig. S1. (A) The RTP emission spectra of Mn- ZnS QDs (10 mg L^{-1}). Inset: schematic illustration of electronic transition involved in the RTP emission from Mn-ZnS QDs. Solutions were prepared in PBS (0.2M, pH 7.4) . (B) TEM image of MPA-capped Mn-ZnS QDs.

Fig. S2. Storage stability of prepared QDs⁺.

Fig. S3. TEM images of Mn-ZnS QD/PDADMAC(QDs⁺).

Fig. S4. Time-dependent RTP emission of the QDs⁺/ROX-DNA

Table S1. Sequences of oligonucleotides used in this study.

Name of oligonucleotide	Sequence of oligonucleotide
Probe DNA	5'-T CAA CAT CAG TCT GAT AAG CTA- ROX-3'
Target RNA (complementary RNA)	5'-UAG CUU AUC AGA CUG AUG UUG A-3'
Single-base mismatch RNA	5'-UAG CUU AUC AGA CUG AUG UAG A-3'
Random RNA	5'-UCA UUC CAG CUC GUA ACG CUA U-3'

Table S2. Effect of co-existing substances on the RTP intensity of 50 nM RNA.

Co-existing substance	[Co-existing substance] / [RNA]	Change of the RTP Intensity (%)
K ⁺	6000	-4.5
Na ⁺	10000	+2.3
Ca ²⁺	1000	-3.6
Mg ²⁺	2000	-4.1
Glucos	800	+0.5
<i>L</i> -Cys	300	+3.6
<i>L</i> -His	300	+4.2
<i>L</i> -Gly	300	+5.8

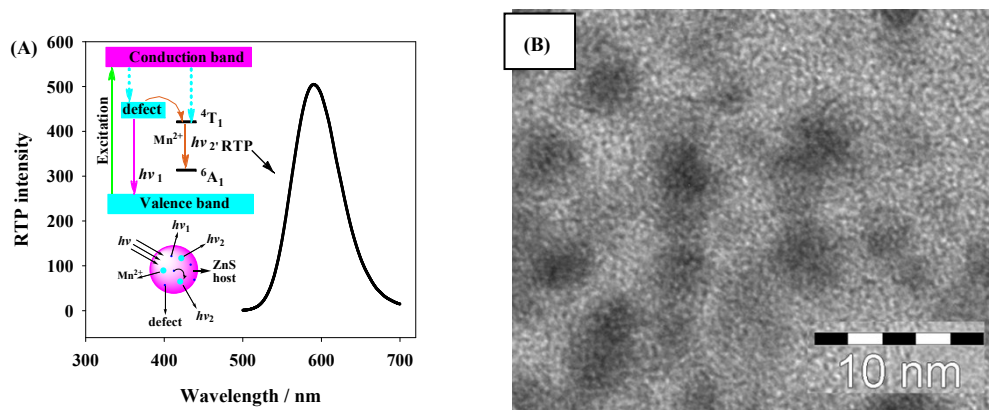


Fig. S1. (A) The RTP emission spectra of Mn- ZnS QDs (10 mg L^{-1}). Inset: schematic illustration of electronic transition involved in the RTP emission from Mn-ZnS QDs. Solutions were prepared in PBS (0.2M, pH 7.4). (B) TEM image of MPA-capped Mn-ZnS QDs.

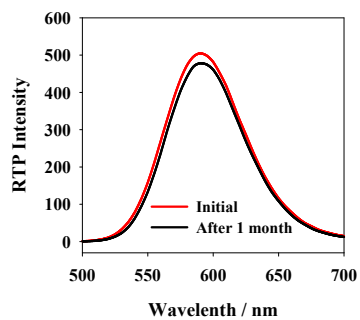


Fig. S2. Storage stability of prepared QDs⁺.

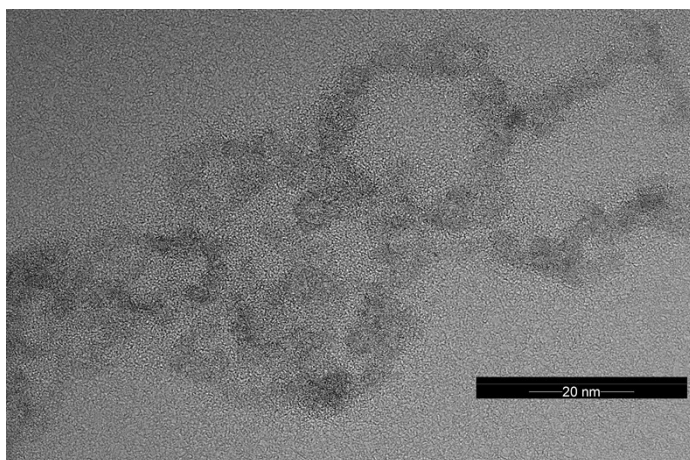


Fig. S3. TEM images of Mn-ZnS QD/PDADMAC(QDs⁺).

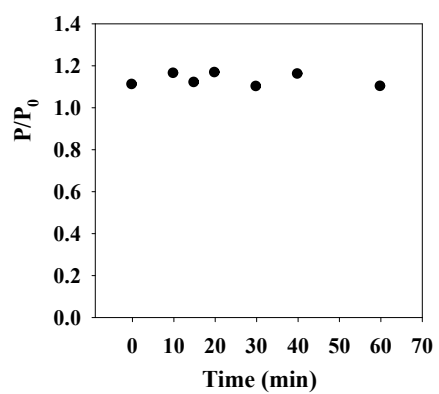


Fig. S4. Time-dependent RTP emission of the QDs⁺/ROX-DNA