Electronic Supplementary Information (ESI)

Visualization of the Intracellular Location and Stability of DNA Flower with a Label-free Fluorescent Probe

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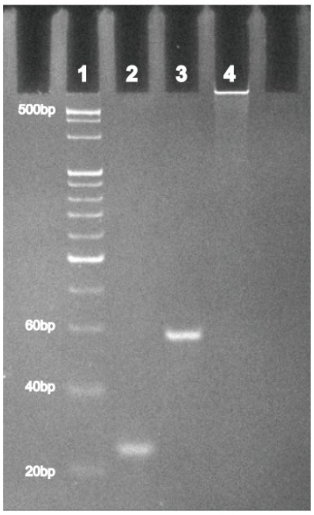

Figure S1 Native Polyacrylamide gel (8%, 275V, 50min) electrophoresis image of the primer, template and DNA flowers (DFs). Lane 1: 20bp DNA marker; lane 2: primer; lane 3: template; lane 4: DNA flowers.

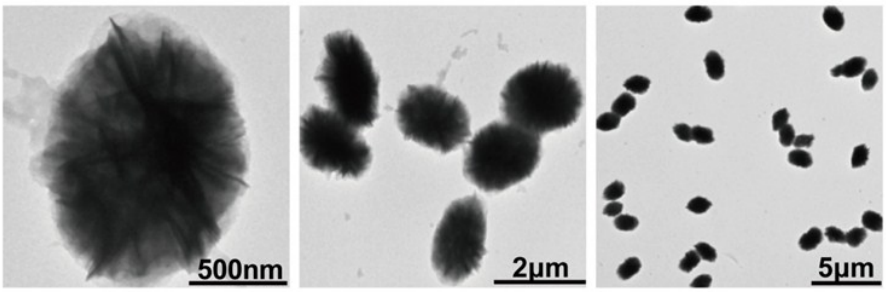

Figure S2 TEM images of DNA flowers without free RIR dyes. The results showed the sizes of the DFs were approximate of 1500 nm × 1000 nm.

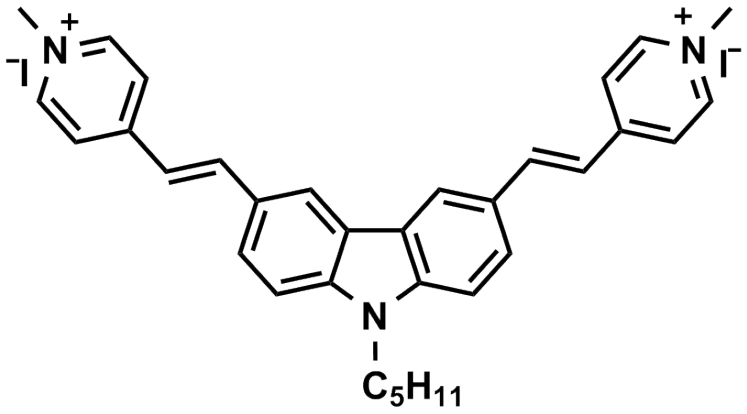

Figure S3 Chemical structure of RIR dyes.

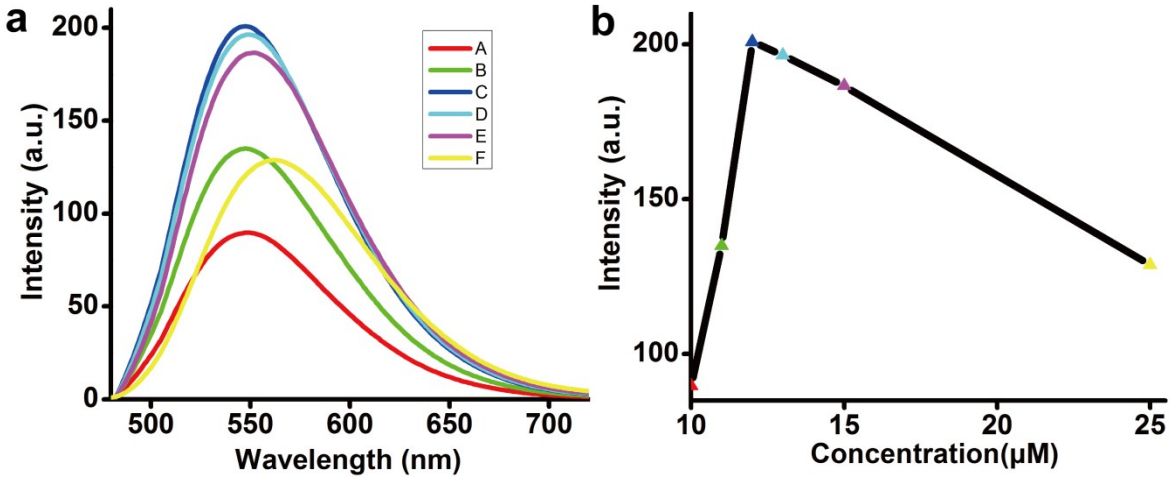

Figure S4 (a) Fluorescence spectrum of DFs stock solution incubated with (A) 10 μM, (B) 11 μM, (C) 12 μM, (D) 13 μM, (E) 15 μM, (F) 25 μM free RIR dyes. (b) Polt of the maximum fluorescence intensity *versus* the concentrations corresponding to (a). The analysis showed the fluorescence of RIR-DFs reached the maximum when 12 μM free RIR dyes were added into DFs.

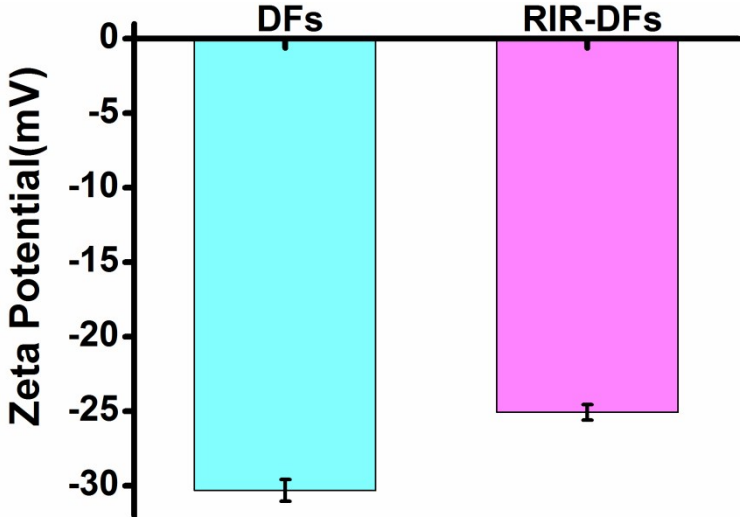

Figure S5 Zeta potential of DFs and RIR-DFs. The results showed the zeta potential was increased from -30mV for DFs to -25mV for RIR-DFs.

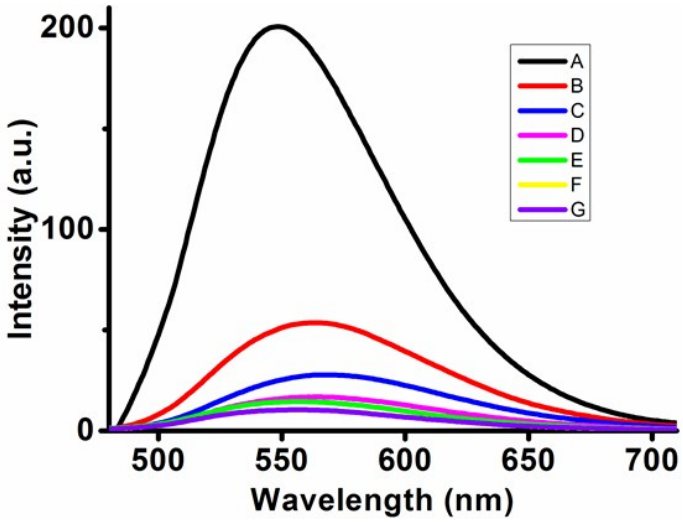

Figure S6 Fluorescence spectrum of RIR-DFs stock solution incubated with DNase I (15 unit/mL) for (A) 0 h, (B) 0.5 h, (C) 0.7 h, (D) 2 h, (E) 8 h,

(F) 20 h, (G) 40 h at 37° C.

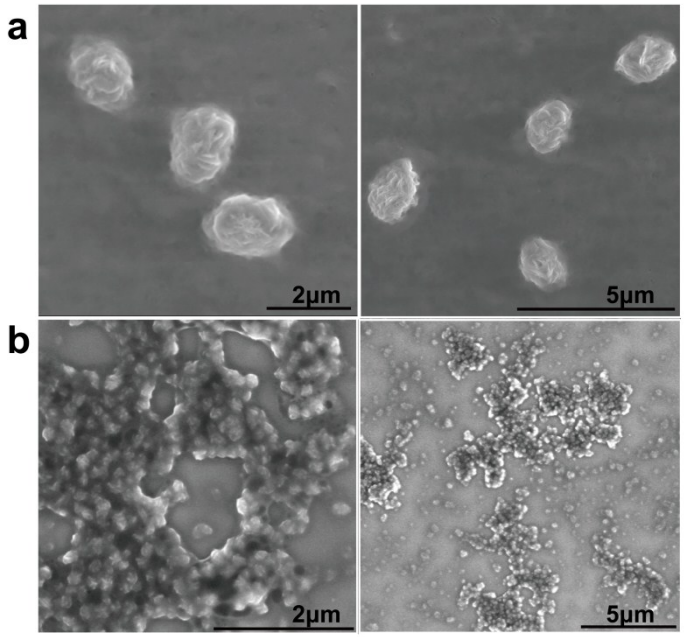

Figure S7 SEM images of (a) RIR-DFs and (b) those after cleavage by DNase I. The results showed that structures of RIR-DFs (256.8 ng/μL) were degraded after DNase I treatment (15U/mL, 40h at 37° C).

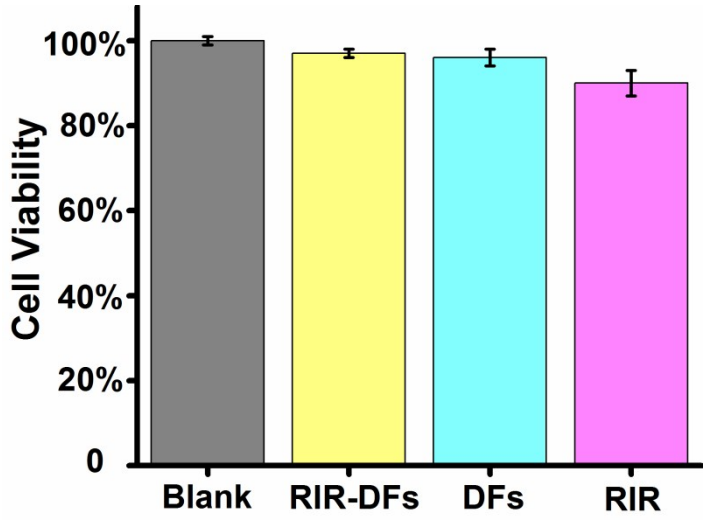

Figure S8 Cell viability of RAW264.7 cells after administration with RIR dyes, DFs and RIR-DFs for 6 hours. Error bars represent standard deviation of five independent experiments in quintuplicate wells of cells.

The results suggested that RIR dyes (0.36μM), DFs (7.7ng/μL) and RIR-DFs (7.7ng/μL) all exhibited no detectable cytotoxicity after 6 h incubation.

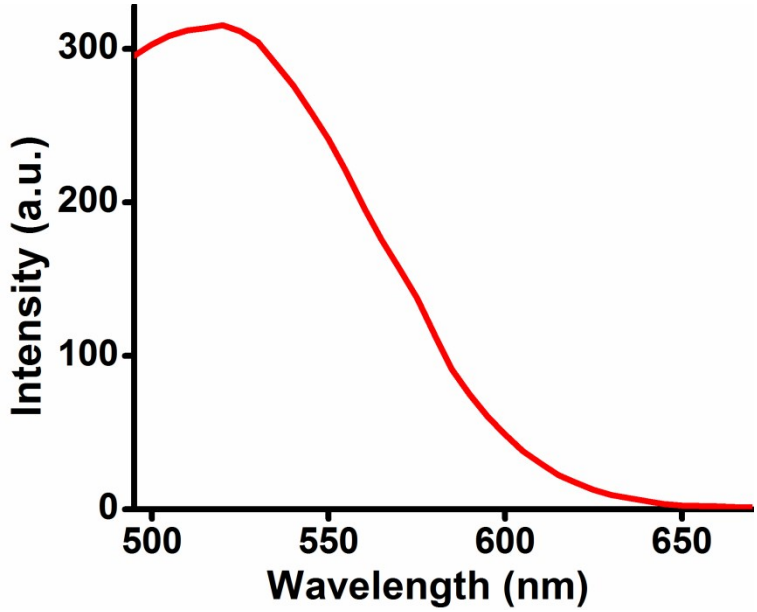

Figure S9 Intracellular fluorescence intensity of RIR-DFs. The results suggested that the intracellular fluorescence emitted with maximum emission wavelength at about 525nm.

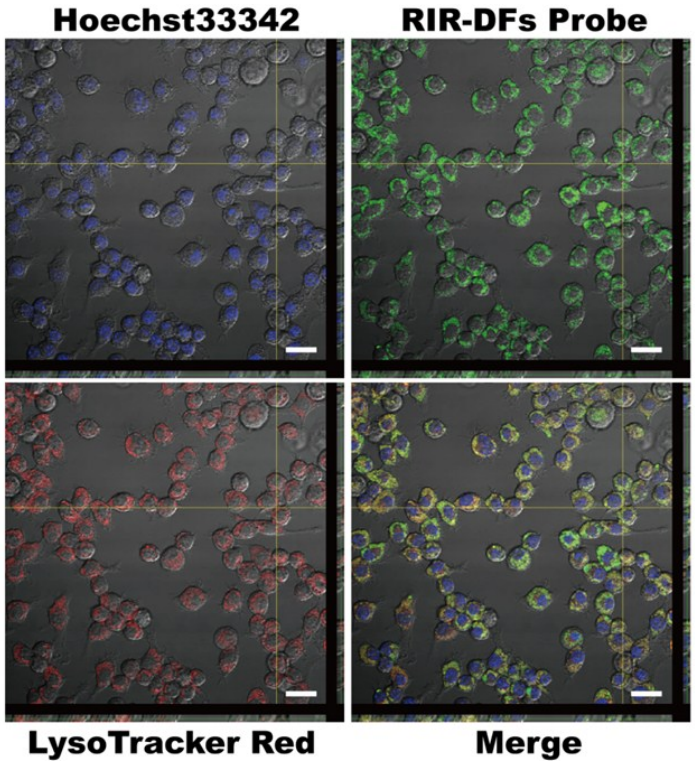

Figure S10 Z-scanning images of RAW264.7 cells after administration with RIR-DFs. The images were taken every 0.36 μm section from the top to the bottom of intact cells. Total depth: 5.04 μm. Scale bar: 20 μM.

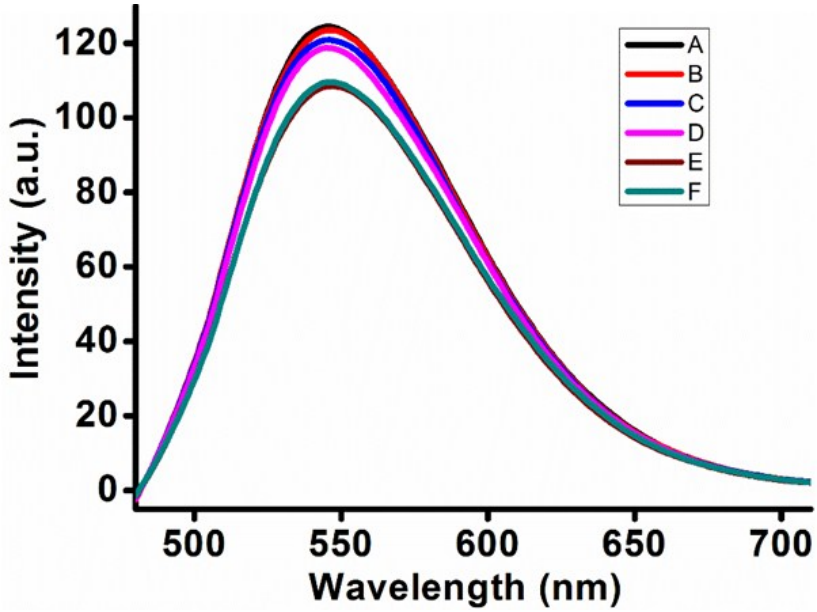

Figure S11 Fluorescence spectrum of RIR-DFs (256.8 ng/μL) incubated with 10% FBS for (A) 0 h, (B) 6 h, (C) 18 h, (D) 24 h, (E) 48 h, (F) 72 h.

Table S1. Sequences of oligonucleotides used in this work.

Template	TTCCCGGCGGCGCAGCAGTTAGATTTTTTTTTTTTTTTGGGTTAG GGTTAGGGTTAGGGTTTTTTTTTTTTTTTTTTTTTTTCTAACCGTA CAGTATT
Primer	TCTAACTGCTGCGCCGCCGGGAAAATACTGTACGGTTAG
PolyT	TTTTTTTTTTTTTTT