Supporting Information

Enhanced Fluorescent Resonant Energy Transfer of DNA Conjugates Complexed with Surfactants and Divalent Metal Ions

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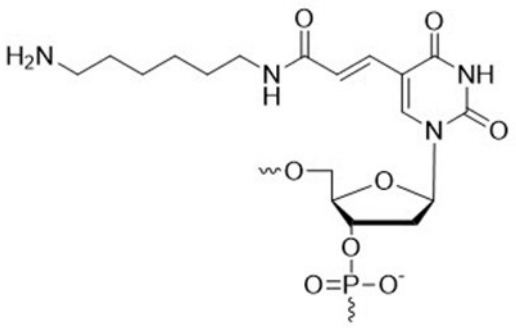
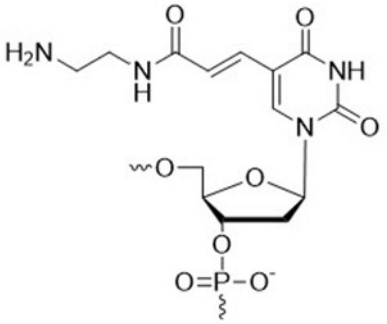
Figure S1. Chemical structure of (a) Thymidine-5-C6 Amino linker, (b) Thymidine-5-C2 Amino linker, and (c) 2'-Deoxyadenosine-8-C6 Amino linker

(a)



(b)



(c)

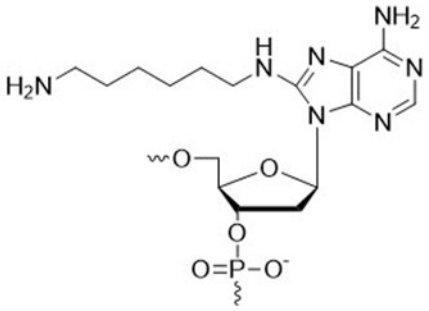


Figure S2. Absorbance spectra of (a) C6-linked TAMRA, (b) C2-linked TAMRA, and (c) TexasRed acceptor conjugating on dsDNA

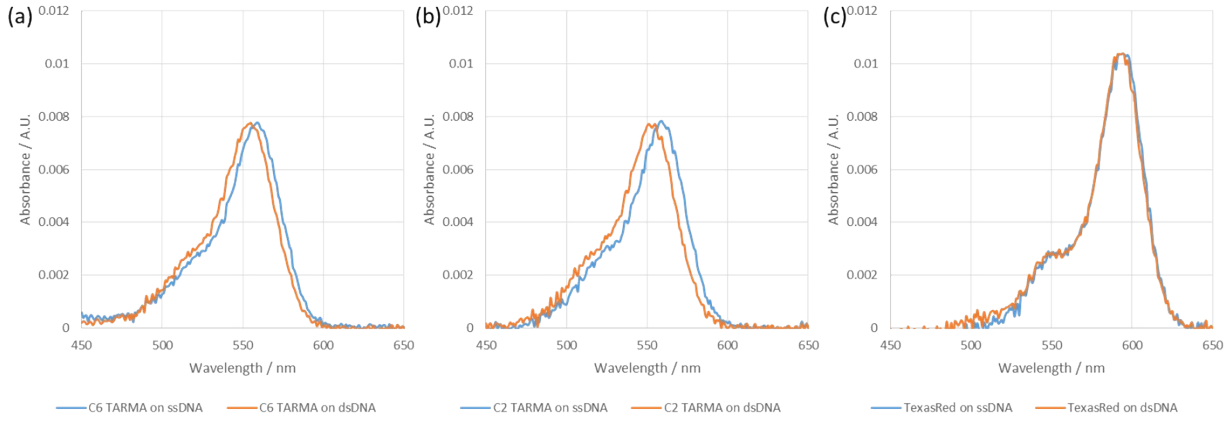


Figure S3. Absorbance spectra of C6-linked TAMRA on DNA FRET system with different concentration of (a) Triton X-100, (b) CTAB, (c) SDS, (d) sodium with 10 mM SDS and (e) magnesium with 10 mM SDS.

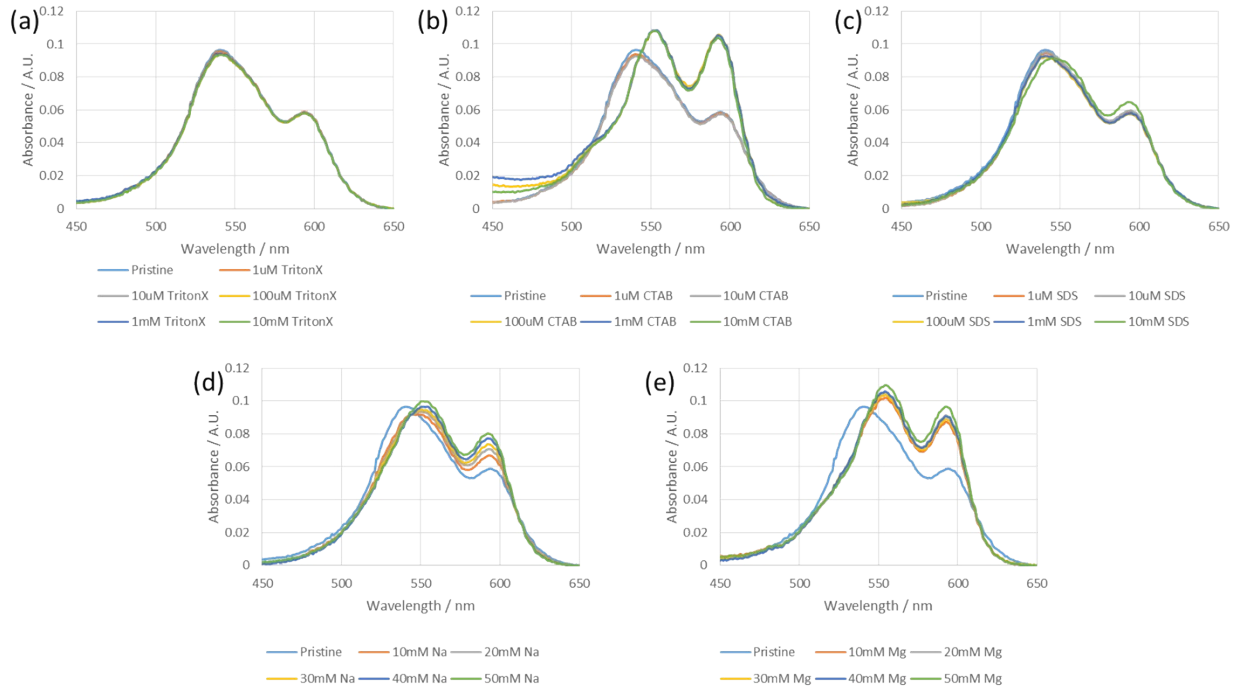


Figure S4. Absorbance spectra of C2-linked TAMRA on DNA FRET system with different concentration of (a) Triton X-100, (b) CTAB, (c) SDS, (d) sodium with 10 mM SDS and (e) magnesium with 10 mM SDS.

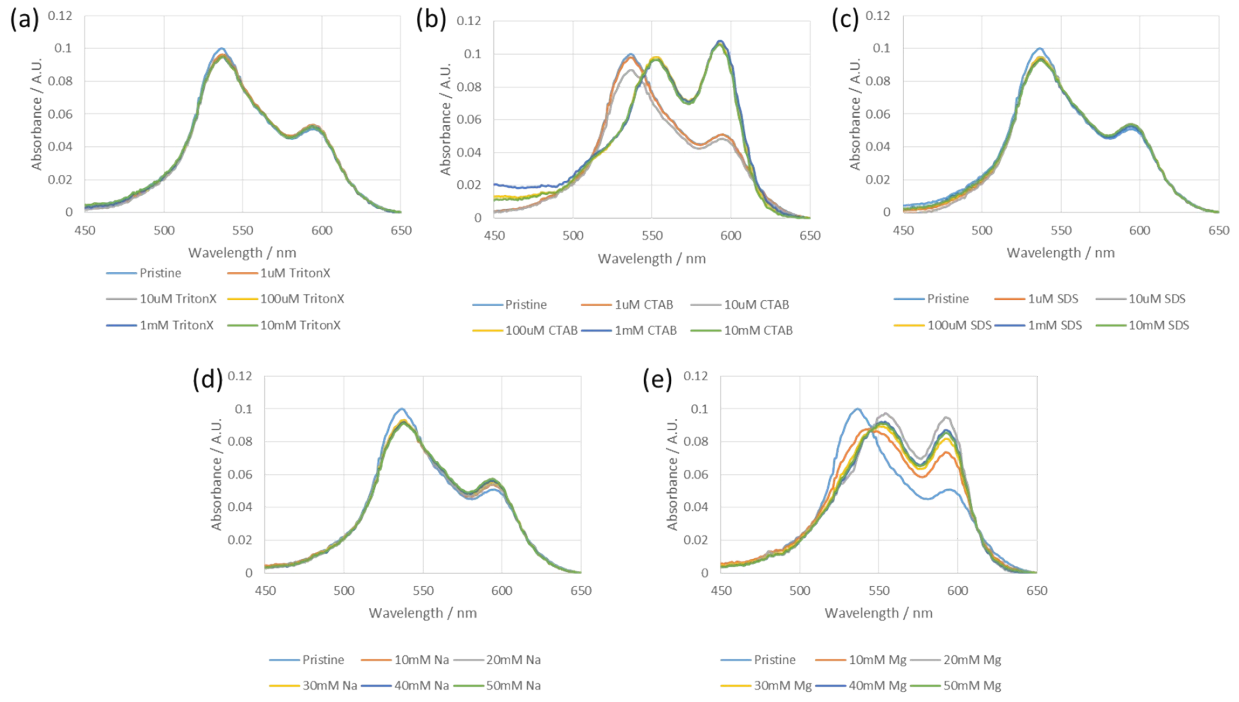


Figure S5. Normalized absorbance and emission spectra of the TAMRA donor and TexasRed acceptor

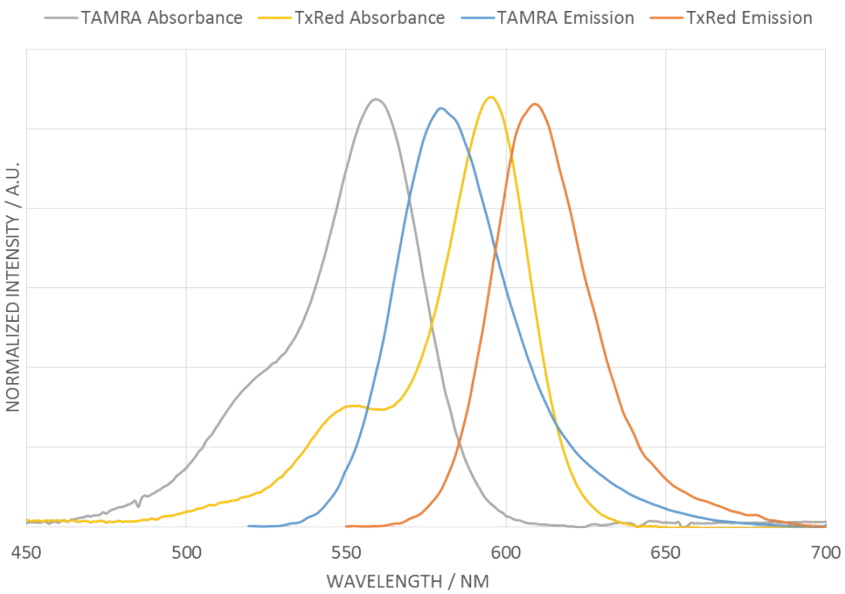


Figure S6. Additional experimental details

Initially, the dye-conjugated 21mer oligonucleotides were prepared for 1 mM DNA concentration in distilled water. For the double stranded (hybridized) FRET constructs, 1 μM of TAMRA conjugated DNA was mixed with 1 μM of TexasRed conjugated complementary strand in 0.5 X phosphate buffered saline, then heated to 60 ^{o}C and cooled down slowly to room temperature for 2 hours.

100 μL concentration of 1 μM hybridized dye-conjugated dsDNA with surfactant and divalent ions was prepared in the well in the microplate (Thermo Scientific 96-Well Microtiter Microplates; Polystyrene, Nonsterile, Flat-bottom) in order to measure for Tecan spectrophotometer (Infinite M200 Pro, Tecan Inc.) to measure the emission from 550 nm to 700 nm as excited at 520 nm.