

Supporting Information

Reversible Reconfiguration of High-Order DNA Nanostructures by Employing G-quartet Toeholds as Adhesive Units

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DNA sequences

Strand	Sequence (5' to 3')
S1a	CTTTCAACAATCTAGGAGAGC6TAGAGCCGCCGAAACGACATC6GAGAG GATCTATCTACATTC
S1b	CTCTCCTAGATTGTTGAAAGC6TACAGCAAAGCCTCCGAGATC6GAATGT AGATAGATCCTCTC
S1c	GGGGTTTTGGGGTTTTATGTCGTTTCGGCGGCTCTATTTTGGGGTTTTGGG G
S1d	GGGGTTTTGGGGTTTTATCTCGGAGGCTTTGCTGTATTTTGGGGTTTTGG GG
S1c-control	ATCATATTGTA CTTTTATGTCGTTTCGGCGGCTCTATTTTCATGTTATACT A
S1c'-control	GTACAATATGATTTTTATGTCGTTTCGGCGGCTCTATTTT TAGTATAACAT G
S1d-control	GTACAATATGATTTTTATCTCGGAGGCTTTGCTGTATTTT TAGTATAACAT G

Table S1 Oligonucleotide sequences involved in this project. Note: C6 is a triethylene glycol spacer.

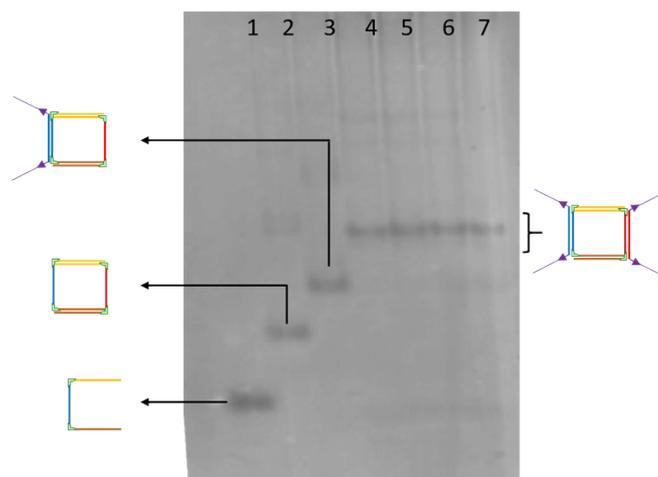


Figure S1. Native PAGE analysis showing the formation of mini-square DNA building block under different concentrations. Lane 4: 15 μM ; lane 5: 45 μM ; lane 6: 75 μM and lane 7: 150 μM .

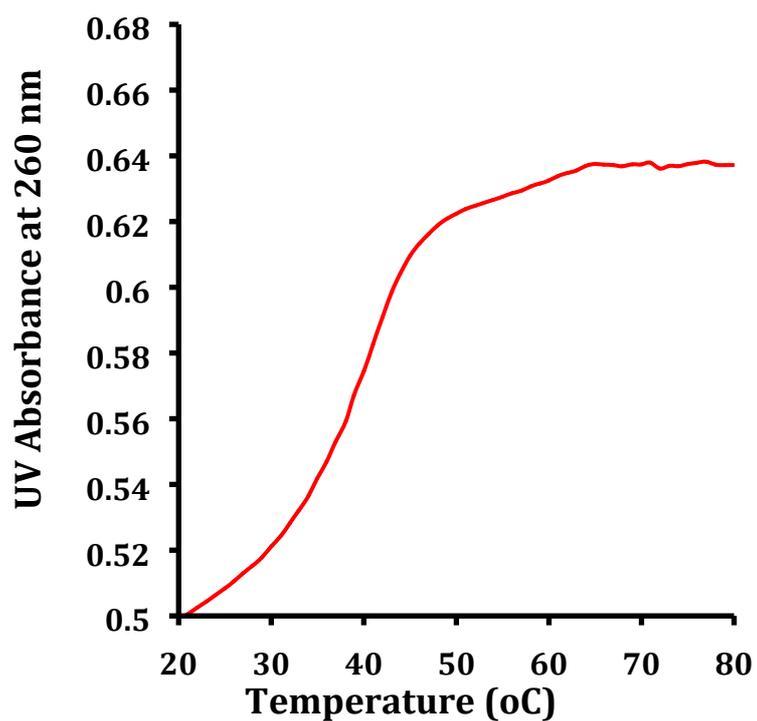


Figure S2 Thermal denaturation curves of duplex DNA with the random natural nucleobases not supporting for G-quartet formation monitored through the UV absorption at 260 nm.

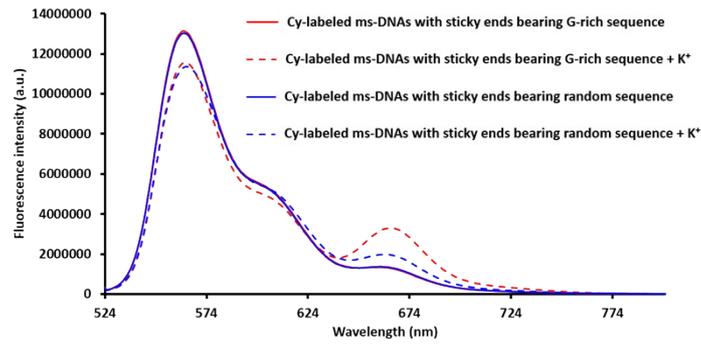


Figure S3. Fluorescence intensity spectra of the two Cy-labeled DNA monomers consisting of G-rich sequences and random nucleobase sequences before and after the treatment of 100 mM K⁺, which are excited at 514 nm.

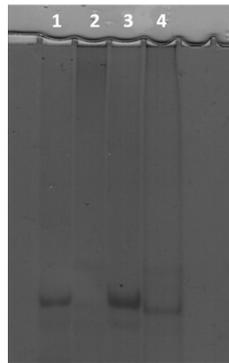


Figure 4 8 % Native PAGE analysis showing the reversible assembly and disassembly of the G-quadruplex induced polymeric DNA nanostructures in a sequential addition of 100 mM K⁺ and 120 mM [2.2.2] cryptand respectively. Lane 1: ms-DNA; lane 2: ms-DNA + K⁺; lane 3 ms-DNA + K⁺ cryptand; lane 4: ms-DNA + K⁺ + cryptand + K⁺