Supporting Information

A Controllable Aptamer-Based Self-Assembled DNA Dendrimer for High Affinity Targeting, Bioimaging and Drug Delivery

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Table S1 Sequences of Oligonucleotides Used in This Work

Oligonucleotide	Sequence (from 5' to 3')
Y_{0a}	GAC CGA TGG ATG ACC TGT CTG CCT AAT GTG CGT CGT AAG
Y_{0b}	GAC CGA TGG ATG ACT TAC GAC GCA CAA GGA GAT CAT GAG
Y_{0c}	GAC CGA TGG ATG ACT CAT GAT CTC CTT TAG GCA GAC AGG
Y_{1a}	GAA GCC ACT CTG ACC TGT CTG CCT AAT GTG CGT CGT AAG
Y_{1b}	GAA GCC ACT CTG ACT TAC GAC GCA CAA GGA GAT CAT GAG
Y_{1c}	TCA TCC ATC GGT CCT CAT GAT CTC CTT TAG GCA GAC AGG
Y_{2a}	GAC ACA CTG AGG TCC TGT CTG CCT AAT GTG CGT CGT AAG
Y_{2b}	GAC ACA CTG AGG TCT TAC GAC GCA CAA GGA GAT CAT GAG

Y_{2c}	TCA GAG TGG CTT CCT CAT GAT CTC CTT TAG GCA GAC AGG
Y_{3a}	TAC TCG AGA CAT A CC TGT CTG CCT AAT GTG CGT CGT AAG
Y_{3b}	TAC TCG AGA CAT A CT TAC GAC GCA CAA GGA GAT CAT GAG
Y_{3c}	ACC TCA GTG TGT C CT CAT GAT CTC CTT TAG GCA GAC AGG
Sgc8-linker	TAT GTC TCG AGT ATT TTT ATC TAA CTG CTG CGC CGC CGG GAA AAT ACT GTA CGG TTA GA
RS-linker	TAT GTC TCG AGT ATT TTT NNN NNN NNN NNN NNN NNN NNN NNN NNN NNN NNN NNN NN

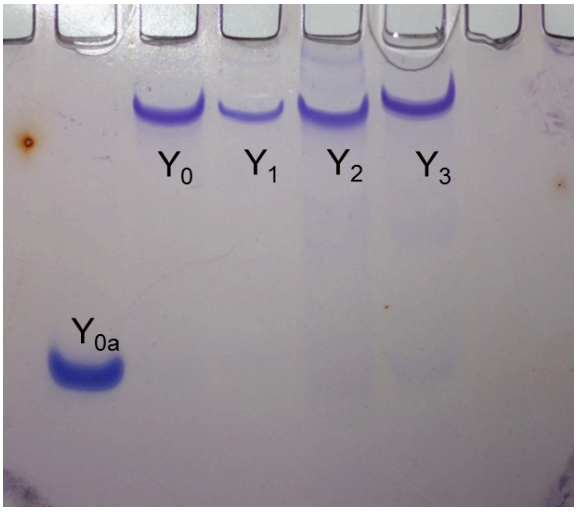

Figure S1. Native PAGE analysis of Y_0, Y_1, Y_2, Y_3.

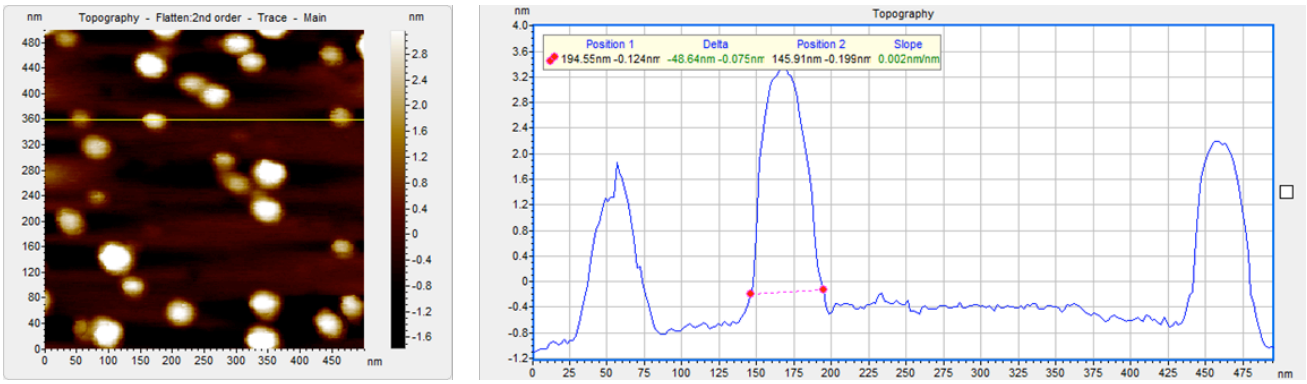

Figure S2. AFM imaging for the last generation ($G_{3\text{-}sgc8}$).

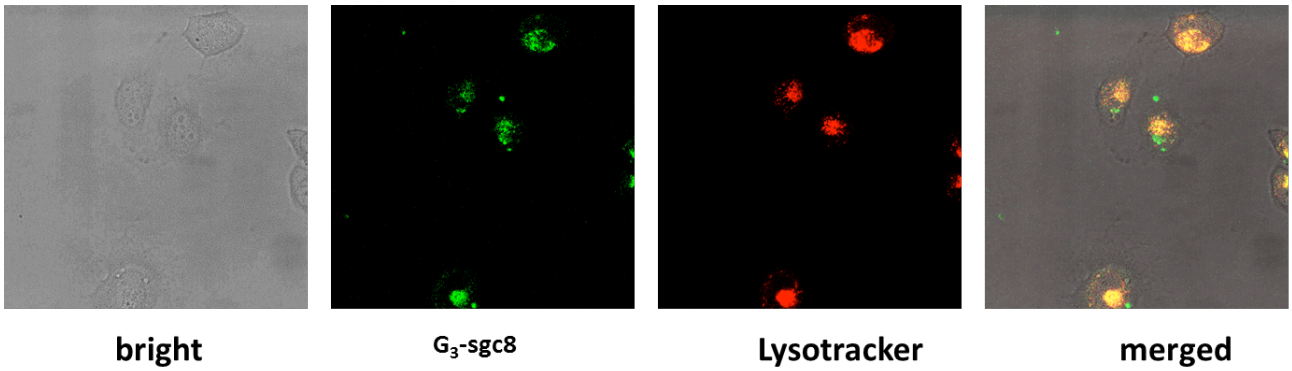

Figure S3. Microscopy images of the colocalization of FITC-$G_{3\text{-}sgc8}$ and Lysotracker (lysosome marker), indicating that the internalized $G_{3\text{-}sgc8}$ was localized in the lysosome.

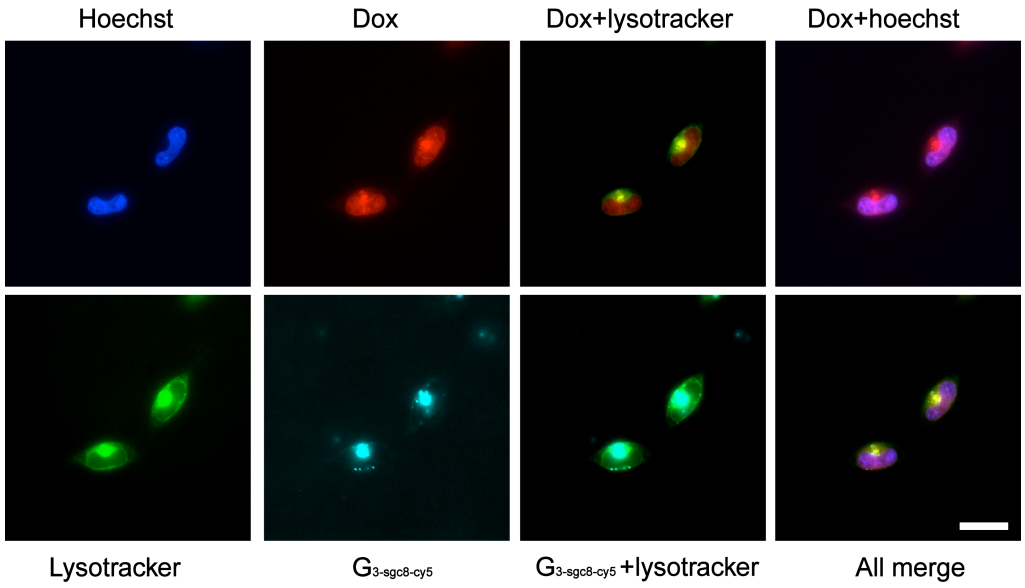

Figure S4. Subcellular distribution of Dox (red) loaded $G_{3\text{-}sgc8\text{-}cy5}$ (cyan). Hoechest (blue) and Lysotracker (green) were used to stain the cell nuclei and acidic organelles. Cells were imaged using a 60x oil-immersion objective. The merged pictures were used to indicate that drugs have started to diffuse into nuclei within 30min incubation. Scar bar: 20um.

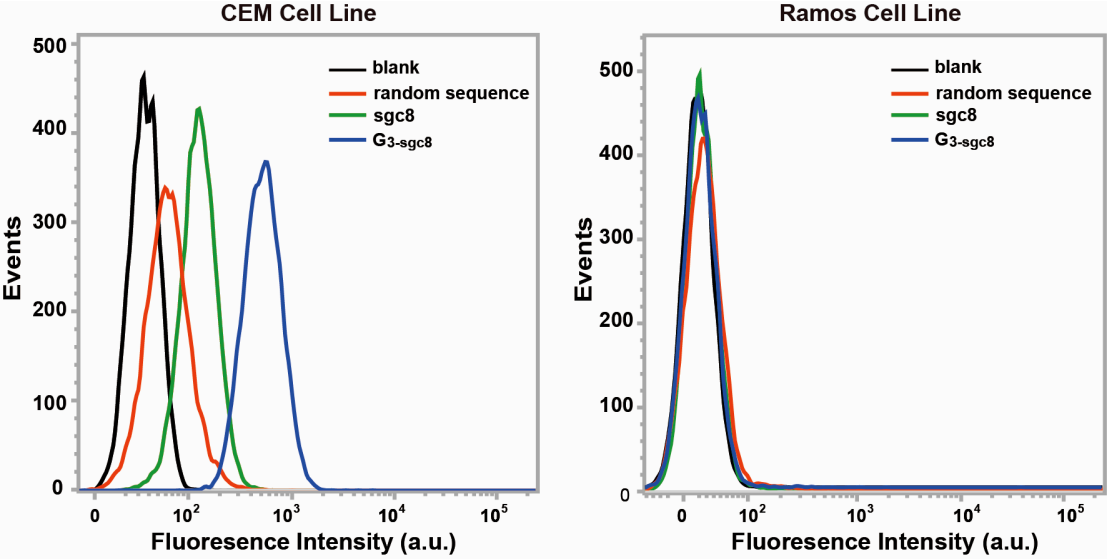

Figure S5. Flow cytometeric analysis after incubating $G_{3\text{-}sgc8}$ with CEM and Ramos cell lines for 2 hours, demonstrating that $G_{3\text{-}sgc8}$ had strong selective cell recognition.

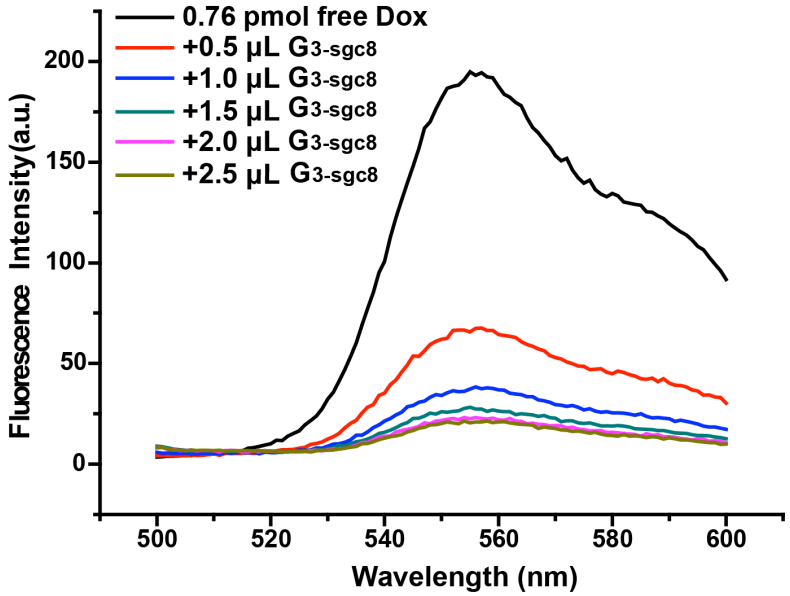

Figure S6. The fluorescence spectra of the Dox solution after adding different amounts of $G_{3\text{-}sgc8}$. Due to FRET between Dox and double-stranded DNA, the change of fluorescence intensity can be used to evaluate the max drug amount in $G_{3\text{-}sgc8}$.

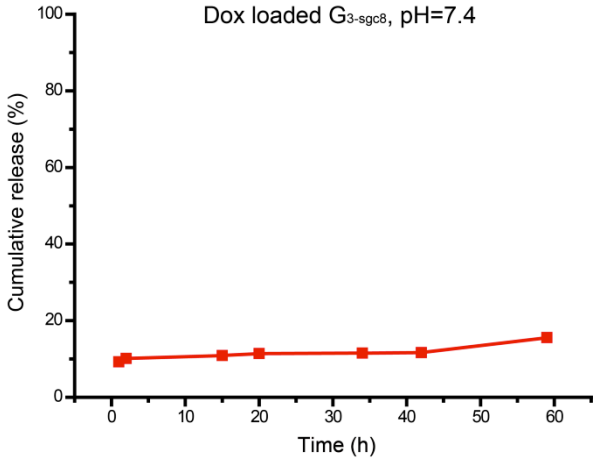

Figure S7. Cumulative release of Dox loaded in $G_{3\text{-}sgc8}$ in 60 hours.

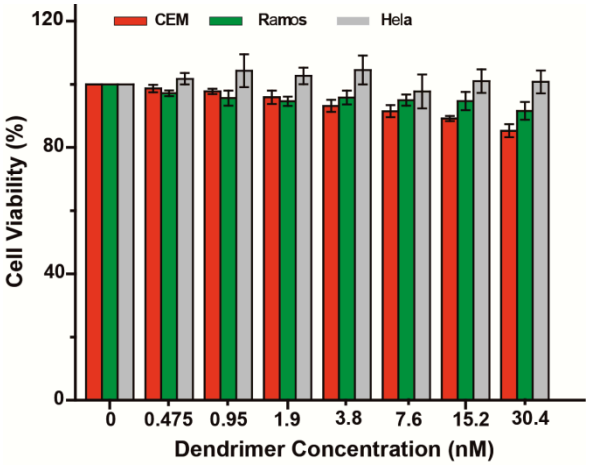

Figure S8. MTS assay results verifying the biocompatibility of $G_{3\text{-}sgc8}$ in CEM cells, HeLa cells and Ramos cells.