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Supporting Information

Selection of CD133-targeted DNA Aptamers for the Efficient and Specific Therapy of Colorectal Cancer

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Table S1. Sequences used in this work. The primer sites are underlined.

Name	Sequence and primer（5’-3’）
Forward primer (P1)	5'-ATACCAGCTTATTCAATT-3'
Reverse primer (P2)	5'-Biotin-AGATTGCACTTACTATCT-3'
FAM-P1	5'-FAM-ATACCAGCTTATTCAATT-3'
FAM-C1	FAM-ATACCAGCTTATTCAATTGCACCACAGATTGTTATTATTTAGTTTATCTCCTAGTTTAGATAGTAAGTGCAATCT
FAM-C5	FAM-ATACCAGCTTATTCAATTACATCGAGTGGCTTATAAAGTAGGCGTAGGGCTAGGCGGAGAGATAGTAAGTGCAATCT
FAM-C53	FAM-ATACCAGCTTATTCAATTGGGACGCTGAACACTATCATGGAGTGATATCTTTCTTGATAGATAGTAAGTGCAATCT
FAM-Cs1	FAM-ATTGCACCACAGATTGTTATTATTTAGTTTATCTCCTAGTTTAGATAGTAAGTGCAAT
FAM-Cs5	FAM-TTACATCGAGTGGCTTATAAAGTAGGCGTAGGGCTAGGCGGAGAGATGTAA
FAM-Cs53	FAM-ACACTATCATGGAGTGATATCTTTCTTGATAGATAGTAAGTGC
DNA1	CTTCCAGACTAACAACAGA
DNA2	CAGGCAGTGACGAACGAATCTGTTGTTAGTCTGGAAG
Cs5-linker	TTCGTTCGTCACTGCCTGTTTTTTTTACATCGAGTGGCTTATAAAGTAGGCGTAGGGCTAGGCGGAGAGATGTAA

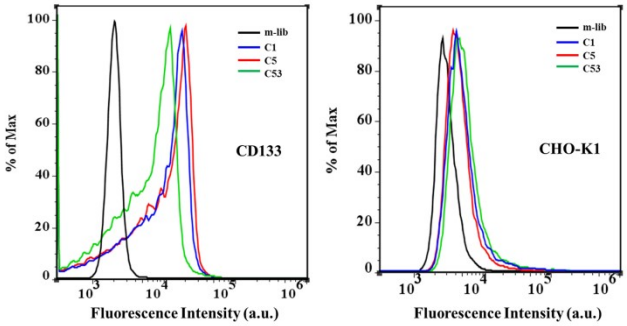

Figure S1. Binding capacity of selected aptamers (C1, C5 and C53) with CD133 and CHO-K1 cells assessed by flow cytometry.

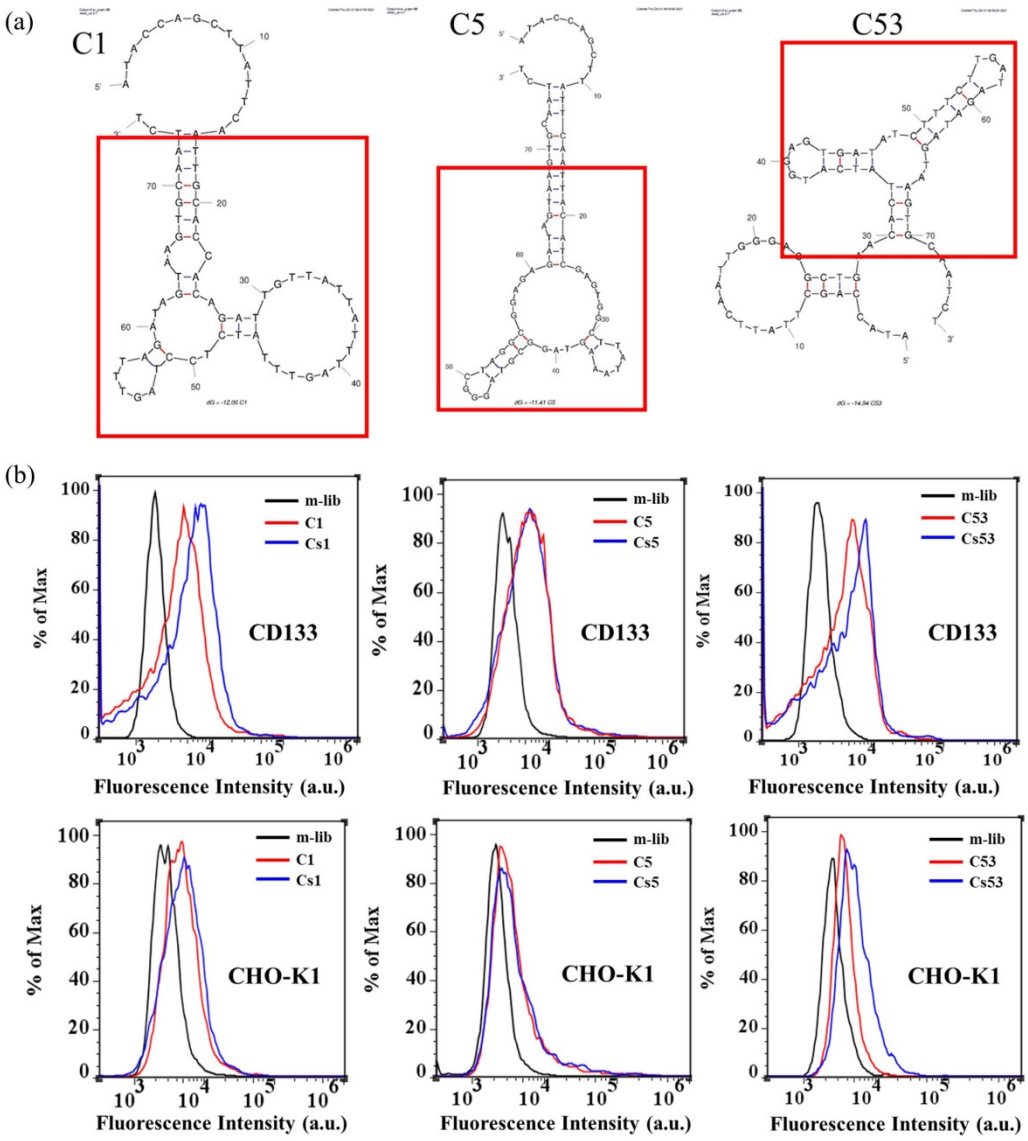

Figure S2. (a) Predicted secondary structures of C1, C5, C53 by Mfold. Truncated sequences marked with red frames. (b) Binding capacity of selected aptamer (C1, C5 and C53) and their truncated sequences (Cs1, Cs5 and Cs53) with CD133 or CHO-K1 cells assessed by flow cytometry.

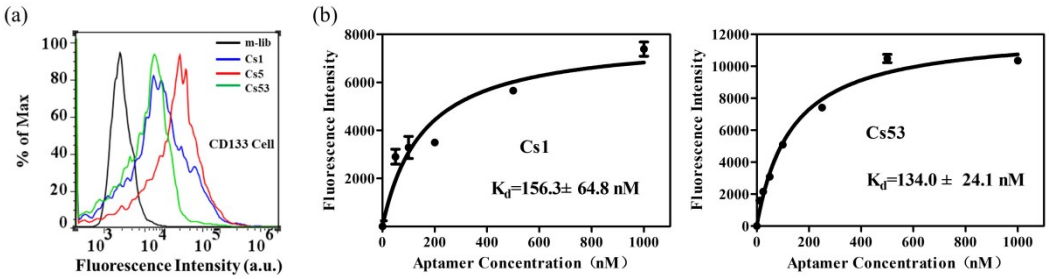

Figure S3. (a) Binding capacity of truncated aptamer Cs1, Cs5 and Cs53 with CD133 cell assessed by flow cytometry. The final concentration of the FAM-labeled sequence is 1.5 μM. (b) The dissociation constant (K_d) curve of Cs1 and Cs53 for CD133 cell (n=3).

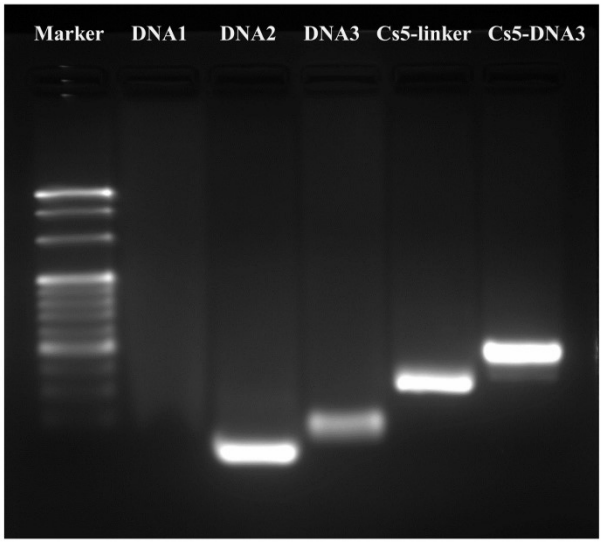

Figure S4. The assembly of Cs5-DNA3 was analyzed by agarose gel electrophoresis. (The band of DNA1 was not clearly visible because the resolution of the agarose gel was insufficient to show such a short strand.)

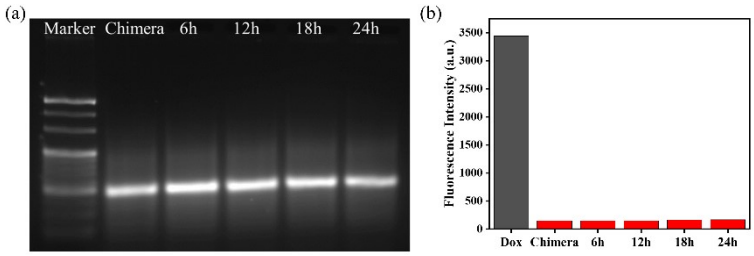

Figure S5. Stability of Chimera in 10% serum after formation. (a) Gel electrophoresis after 6 h, 12 h, 18 h and 24 h. (b) Fluorescence intensity of 15 μM Dox and Chimera after 6 h, 12 h, 18 h and 24 h.

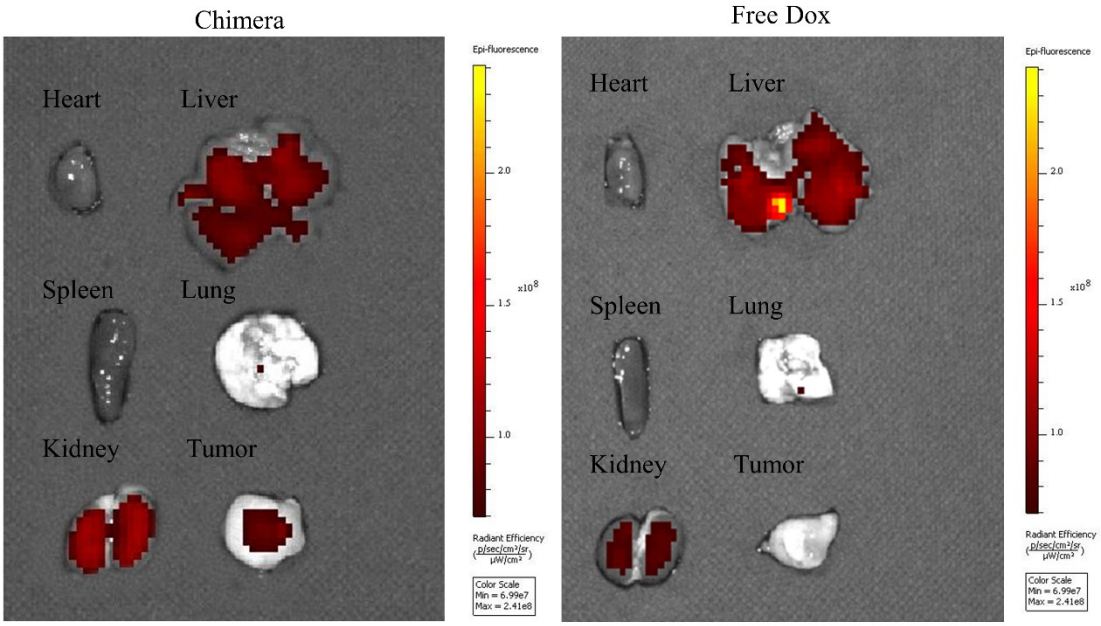

Figure S6. Intravital imaging of Chimera and Free Dox in the tumor and major viscera (heart, liver, spleen, lung and kidney) after 24 h of intravenous injection.

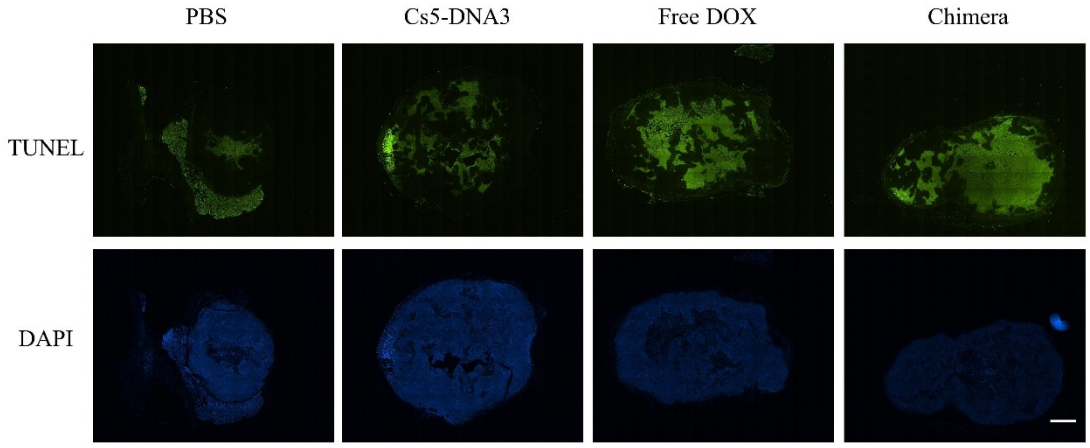

Figure S7. TUNEL staining of tumor tissues after 10 days of various treatments (scale bar: 1000 μm).

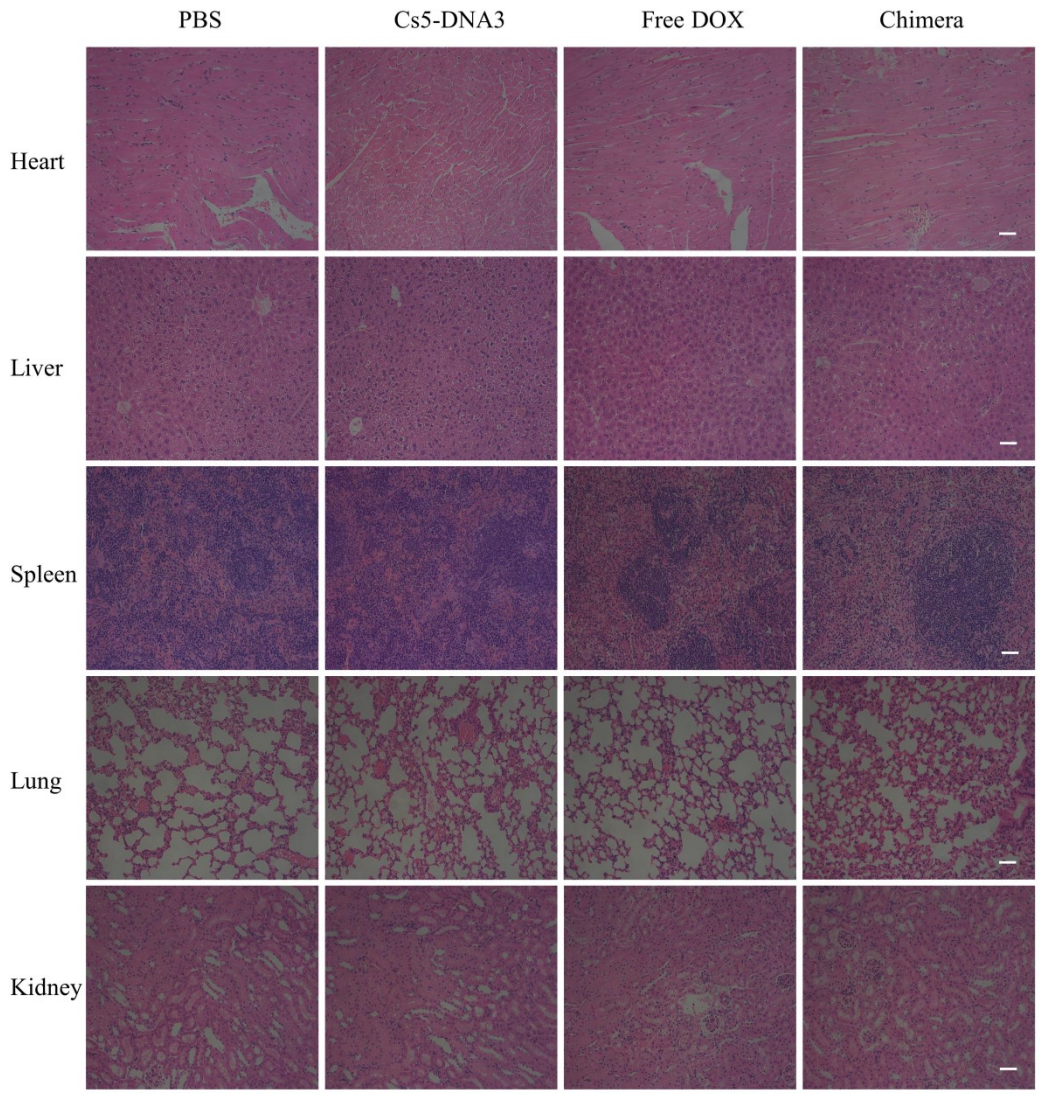

Figure S8. H&E staining pictures of major organs in various treatment groups (Scale bars: 50 μm).