

Supporting Information

DNA aptamer-based dual-responsive nanoplatform for targeted MRI and
combination therapy for cancer

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Table S1: Synthesized oligonucleotides used in the experiments.

Oligonucleotides	Sequence
Probe 1	5'-GGTGGTGGTGGTTGTGGTGGTGGTGG TTTTTACCTGGGGGAGTATTGCGCAGGAAGGT-3'
FAM-Probe 1	5'-FAM-GGTGGTGGTGGTTGTGGTGGTGGTGG TTTTTACCTGGGGGAGTATTGCGCAGGAAGGT-3'
FAM-NH ₂ -Probe 1	5'-FAM- GGTGGTGGTGGTTGTGGTGGTGGTGGTTTTTACCTGGGGGAGTATTGCGCAG GAAGGT-C6-NH ₂ -3'
cDNA	5'-ACCTCCTCCGCAATACTCCCCAGGT-3'
NH ₂ -Probe 1	5'-GGTGGTGGTGGTTGTGGTGGTGGTGG TTTTTACCTGGGGGAGTATTGCGCAGGAAGGT- C6-NH ₂ -3'
Probe 2	5'-ACCTGGGGGAGTATTGCGCAGGAAGGT-3'

Notes: AS1411 aptamer was marked with red color and ATP aptamer as marked with green color.

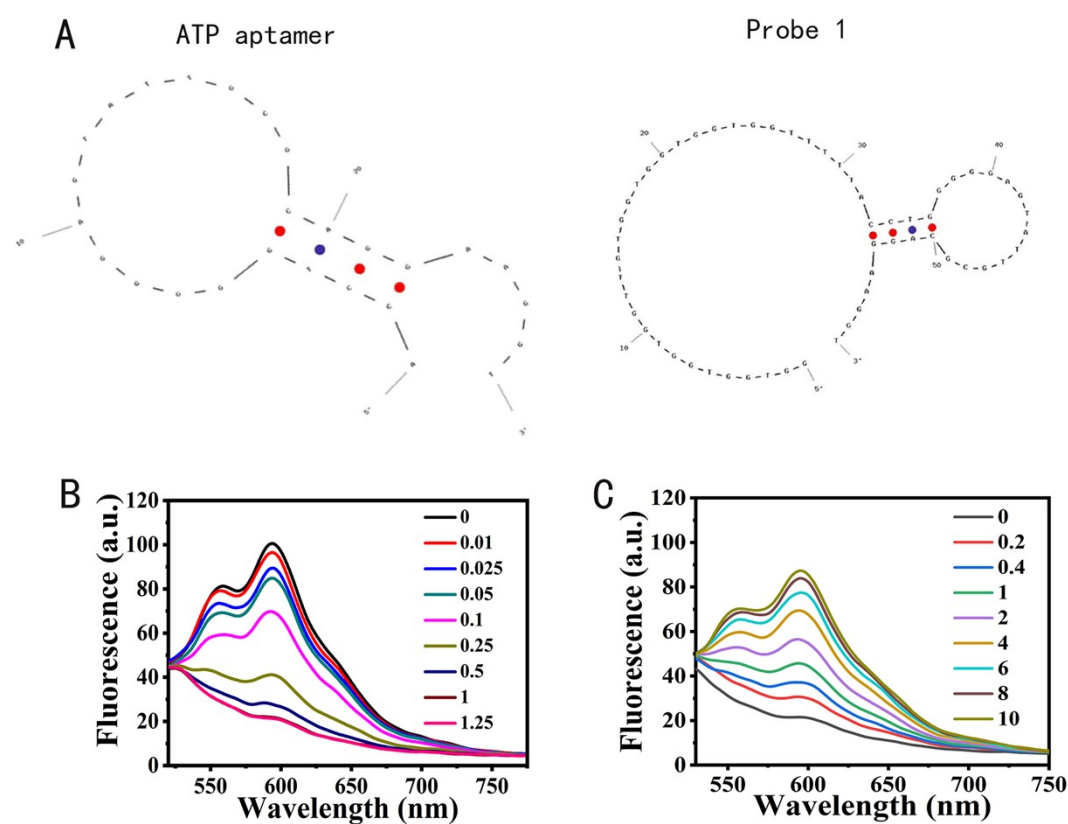


Fig S1: (A) Second structure of ATP aptamer and Probe 1 produced by IDT software. (B) The loading of Dox by NH₂-Probe 2-cDNA. (C) The release of Dox from ATP-triggered NH₂-Probe 2-cDNA-Dox.

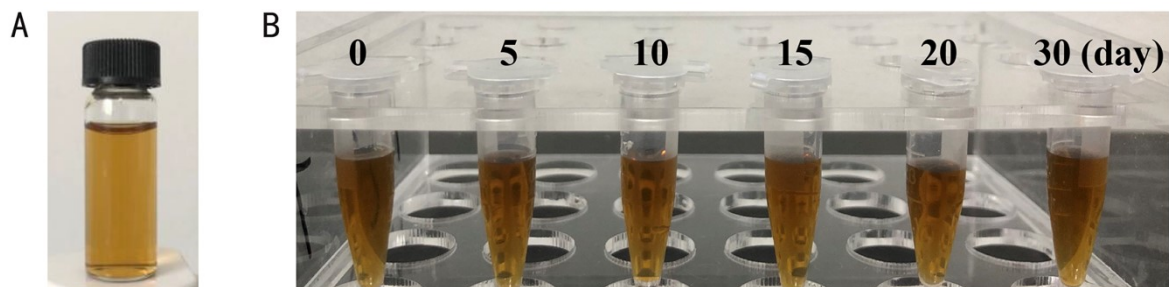


Fig S2: (A) Photographs of MnO₂ nanosheets solution. (B) Photographs of MnO₂ nanosheets solution during a 30-day period at 4 °C.

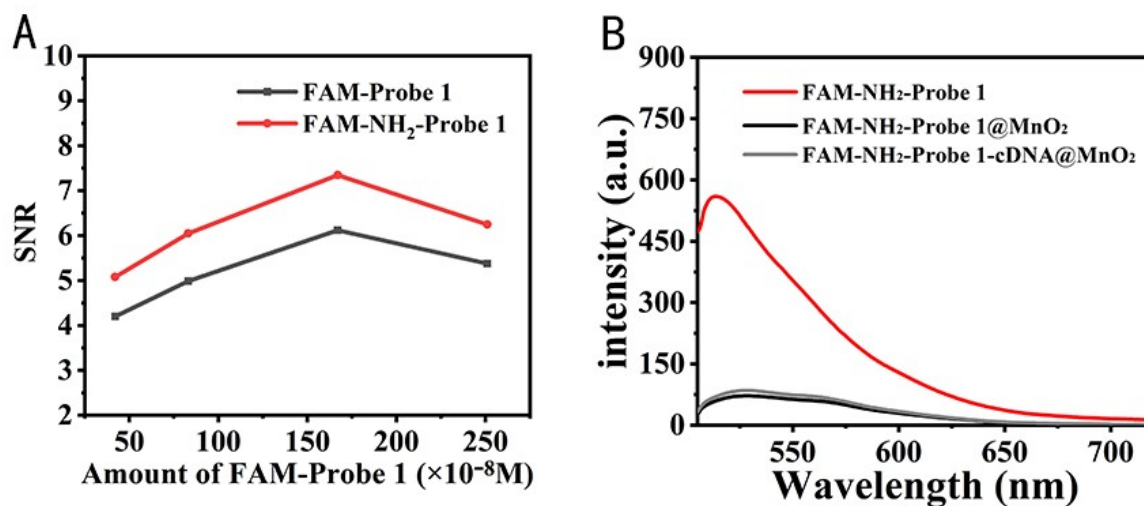


Fig S3: (A) Adsorption of FAM-Probe 1 and FAM-NH₂-Probe 1 on MnO₂ nanosheets. (B) Adsorption of FAM-NH₂-Probe 1-cDNA on MnO₂ nanosheets.

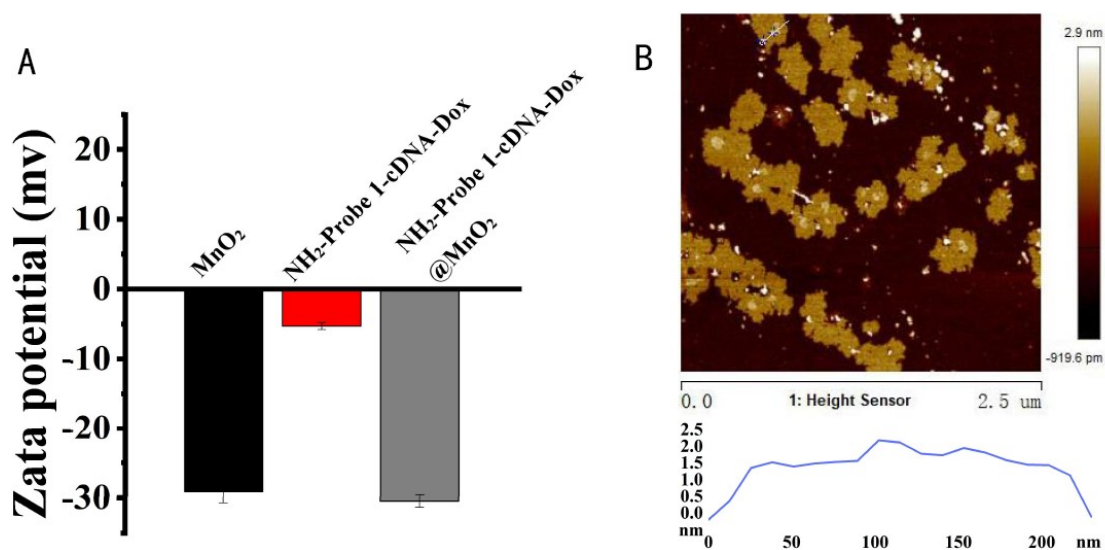


Fig S4: (A) Zeta potential determinations of MnO_2 , NH_2 -Probe 1-cDNA-Dox and NH_2 -Probe 1-cDNA-Dox@ MnO_2 . (B) The AFM characterization of NH_2 -Probe 1 - cDNA-Dox@ MnO_2 .

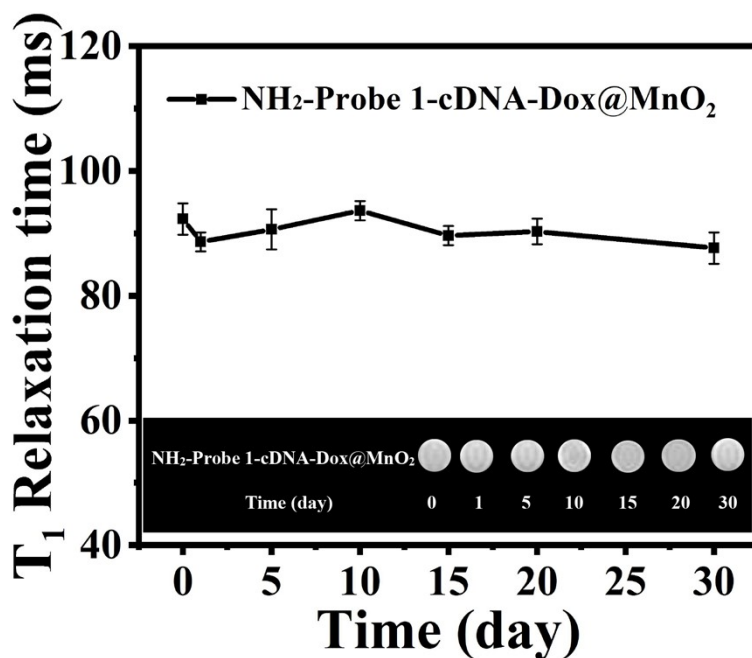


Fig S5: MRI signal intensity change of NH_2 -Probe 1-cDNA-Dox@ MnO_2 with GSH during a 30-day period. Inset picture is the corresponding T_1 -weighted MRI image.

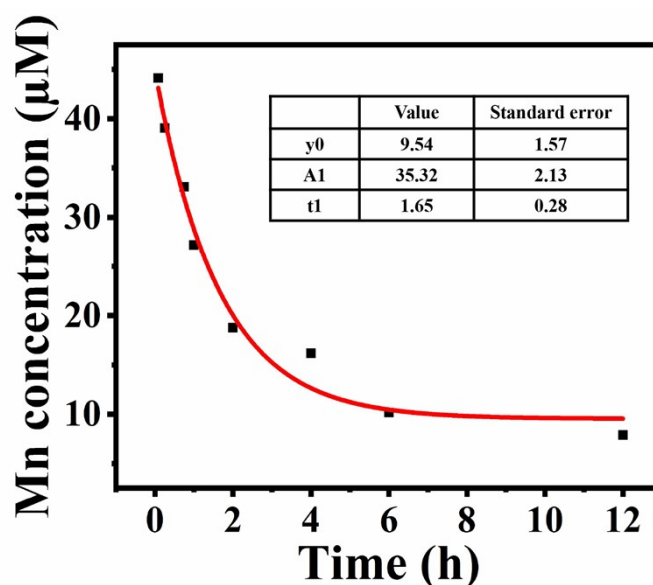


Fig S6: Fitting half-life curve of NH_2 -Probe 1-cDNA-Dox@ MnO_2 .