

Supporting Information

Fluorescence Resonance Energy Transfer based Hybridization Chain Reaction for in Situ visualizing of Tumor-Related mRNA

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Table S1. Oligonucleotide sequences

Names	Sequences(5'-3')
DNA target	GTTTCTGTTCTCCCTGG
Hairpin 1 (H1)	CCAGGGAGAACAGAAACCTCACTAAAAATCTCTATC TACCCTACAATTCTCCC
Hairpin 2 (H2)	GTAGGGTAGATAGAGATTTTTAGTGAGC-TAMRA-ACT TCATATCACTCACTAAAAATCTCTATCTACCC
Hairpin 3 (H3)	CTCACTAAAAATCTCTATCTACCCTACAATTCTCCCGG GTAGATAGAGATTTTTAGTGAGTGATATGAAGTG-FAM
Binary Probe 1 (BP1)	FAM-ACAGAAACTTGATCACCA
Binary Probe 2 (BP2)	TGCTGCTGTCCAGGGAGA-TAMRA
TK1 forward	CTCCTACCCACTGGTCTGCTTA
TK1 reverse	CAGGGAGAACAGAACTCAGCA
GAPDH forward	TGGGTGTGAACCATGAGAAGT
GAPDH reverse	TGAGTCCTTCCACGATACCAA
Inhibitor	CCAGGGAGAACAGAAAC

The part of TK1 mRNA (red part denotes the selected target sequence):

GUGUGGCUGCCCCACCUGCCGAUGCUCUCCUCCUACCCACUGGUCUGCUUA
AAGCUUCCCUCUCAGCUGCUGGGACGAUCGCCAGGCUGGAGCUGGCCCCGCUUGG
UGGCCUGGGAUCUGGCACACUCCCHUCUCCUUGGGGUGAGGGACAGAGCCCCACGC
UGUUGACAUCAGCCUGCUUCUCCCCUCUGCGGCUUUCACUGCUGA**GUUUCUGUU
CUCCUGG**GAAGCCUGUGCCAGCACCUUUGAGCCUUGGCCACACUGAGGCUUAG
GCCUCUCUGCCUGGGAUGGGCUCUCCACCCUCCCCUGAGGAUGGCCUGGAUUCACGC
CCUCUUGUUUCCUUUUGGGUCUAAAGCCUCCUACCUCUGGUGAUGGUUCCACA
GGAACAACAGCAUCUUUCACCAAGAUGGGUGGCACCAACCUUGCUGGGACUUGGA
UCCCAGGGGCUUAUCUCUUAAGUGUGGAGAGGGCAGGGUCCACGCCUCUGCUGU
AGCUUAUGAAAUAACUAAUUGAAAAUUCACUGGU

Supporting Figures

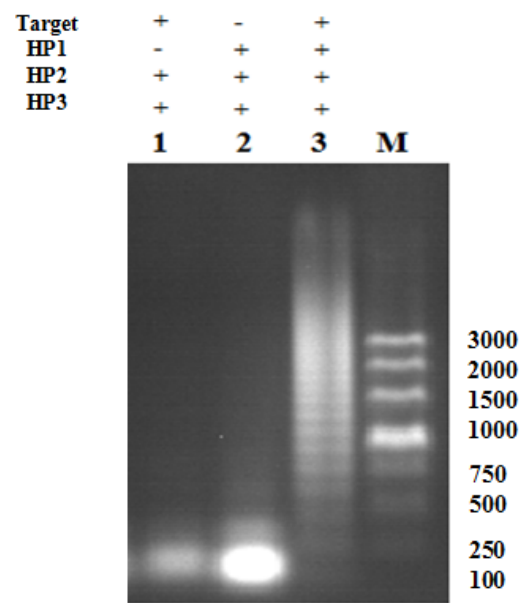


Figure S1. Agarose gel (2%) electrophoresis image of HCR products.

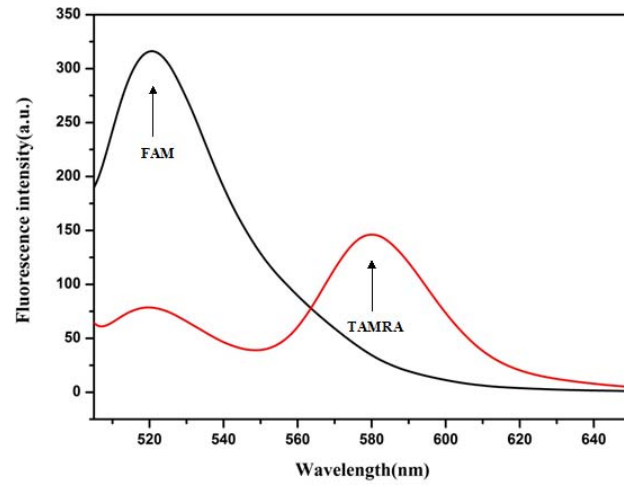


Figure S2. Fluorescence profile of FRET-based HCR probes without (black line) and with (red line) target DNA.

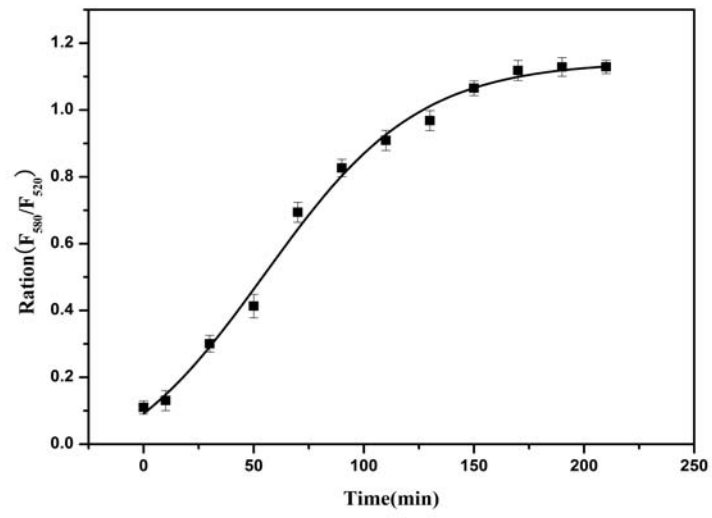


Figure S3. Kinetics of the FRET-based HCR probes response to 10 nM target DNA.

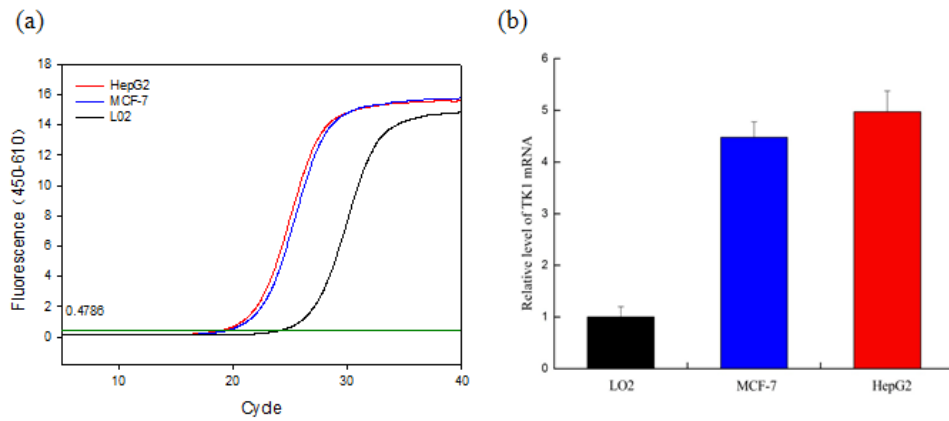


Figure S4. Analysis of TK1 mRNA in three different cells by qRT-PCR. (a) Real-time fluorescence curves in qRT-PCR analysis. The green horizontal line represents the threshold line, and the number on the line indicates the threshold value. (b) Relative expression levels for Tk1 mRNA in three different cell lines.

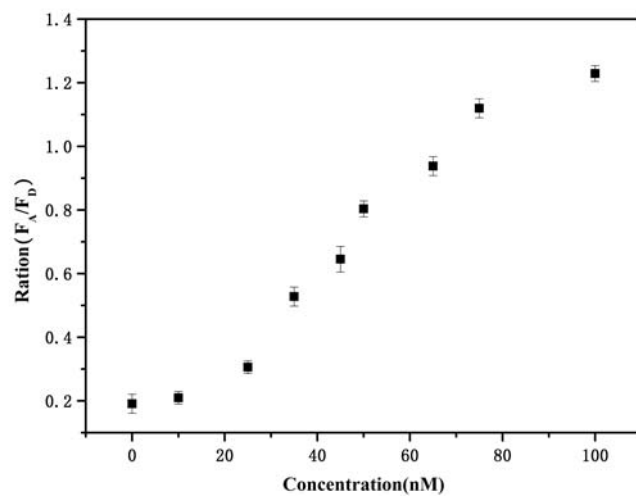


Figure S5. A plot of Acceptor-to-Donor ratio of the FRET-based binary probes as a function of target concentrations.

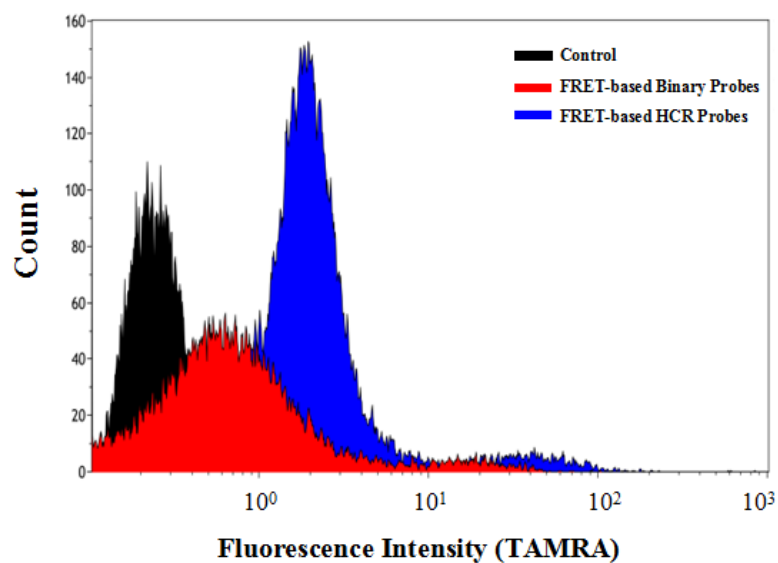


Figure S6. MCF-7 associated fluorescence (TAMRA) of populations treated with the FRET-based binary probes and the FRET-based HCR probes as determined by flow cytometry. Control means only cells.