

Supplementary Information

Table S1 Sequences of DNAs and RNAs used in this work

Name	Sequence (5' to 3')
DNA1	TCAACATCAGTCTGATAAGCTA
DNA2	ATCAGACTGA
MB1	FAM-GACCTTCAGTCTGATAGGTC-BHQ1
MB2	BHQ1-GACCTATCAGACTGAAGGTC-FAM
miRNA-21	UAGCUUAUCAGACUGAUGUUGA
DNA-21	TAGCTTATCAGACTGATGTTGA
miRNA-155	UUA AUGCUAAUCGUGAUAGGGG
SM-microRNA-21	UAGCUUAUG <u>A</u> GACUGAUGUUGA
Random DNA	CCCCTATCACGATTAGCATTA

Table S2 Comparison of the performance of recently reported fluorometric assays for the detection of miRNA-21 based on nucleic acid amplification technique.

Materials	Ampl. ^a	LOD ^b	Linear range	SNP ^c	Imaging ^d	Ref.
DNA1 and DNA2 (label-free), MB1 and MB2 (labeled with FAM and BHQ1)	CHA	0.76 pM in buffer 0.12 pM in 10% serum	0.1~1000 pM in buffer 0.1~100 pM in 10% serum	Yes	Yes	Our work
H0 (label-free), H1, H2, H3, H4, each labeled with FAM and BHQ1	CHA	0.025 nM	0.05~6.4 nM	Yes	–	[39]
DNA tetrahedron, cDNA, iDNA, bDNA, Cy3- labeled H1, Cy5-labeled H2	CHA	26 pM	5~20 nM	–	Yes	[41]
Cy3-labeled DNA tetrahedron 1, Cy5-labeled DNA tetrahedron 2	CHA	120 pM	0.1~10 nM	Yes	Yes	[40]
Gold nanoparticle, FAM-labeled H1, label-free H2	CHA	10 pM	0.1nM~10 nM	Yes	–	[45]
Polystyrene microspheres, 3-D DNA walking machine	CHA	41pM	50 pM~20 nM	–	–	[47]
Gold nanoparticles, FAM-H1, TAMAR-H2	CHA	3.7 pM	10 pM~1 nM	–	Yes	[43]
Carbon dots (CD), FAM-ssDNA, T7 exonuclease	T7 ^e	1 pM	0.05~10 nM	Yes	–	[46]
AuNPs, ZIF-8, locking strand, Zn ²⁺ -dependent DNAzyme-embedded walking strand	DNA walker ^f	19.4 pM	30 pM~50 nM	Yes	Yes	[44]

^a Amplification strategy; ^b Limit of detection; ^c Single nucleotide polymorphism; ^d Intracellular imaging; ^e T7 exonuclease-assisted enzymatic amplification; ^f DNA walker-based amplification

Table S3 Detection of miR-21 in diluted serum samples.

Sample	Spiked (pM)	Detected (pM)	Recovery (%)	RSD (%)
1	5	4.47	89.4	1.5
2	10	11.56	115.6	2.0
3	50	43.65	87.3	1.3
4	100	109	109	1.1

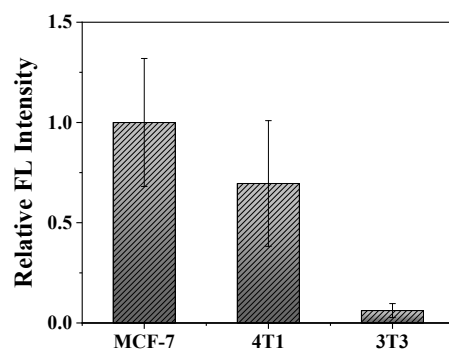


Fig. S1 Relative fluorescence intensity of MCF-7, 4T1, and 3T3 cells after being incubated with the DNA probes.