Electronic Supplementary Information

Branched RCA Coupled with NESA-based Fluorescence Assay for Ultrasensitive Detection of miRNA

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Tab. S1 Oligonucleotides sequences used in this work.

Oligonucleotide name	Sequence (5'- 3')
Hairpin probe1	CCCCTATCACGATTAGCATTAACATTGAGGATTTCTATATAGGGG
Hairpin probe 2	TGGAGCATTACCCGTTTTTACCTCCAGA
Padlock probe 1	P-CCCCTATATAGAAGTCTGATAGCACAGACGCGCCATCGATAGGCGTGGAGCATTACCCGTGGCTTCTTCGTACTAG
Padlock probe 2	P-AAGTAGTCTATTGGTCGGATCTGGAGGTTGCATGTGCTGAGGCGAATTTAACGACCCACACCGAATACAA
Ligation probe 1	CTATATAGGGGCTAGTACGAAG
Ligation probe 2	ATAGACTACTTTTGTATTCGGT
Molecular beacon (MB)	(FAM)CATGTGCTGAGGCGTTTCACATG(DABCYL)
MiR-155	UUAAUGCUAAUCGUGAUAGGGG
MiR-122	UGGAGUGUGACAAUGGUGUUUG
MiR-205	UCCUUCAUUCCACCCGAGUCUG
MiR-21	UAGCUUAUCAGACUGAUGUUGA
Let-7a	UGAGGUAGUAGGUUGUAUAGUU

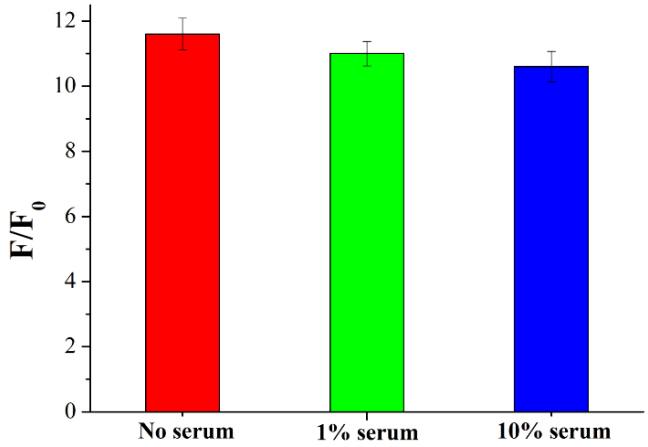

Fig. S1 Interference of human serum with miR-155 detection. The data shown here represent the average of three independent experiments. Relative Standard Deviation (RSD) values of the samples in the absence and presence of 1% serum or 10% serum are 4.92%, 3.75% and 4.72%, respectively. F and F_0 represent the fluorescence intensities corresponding to the target miR-155 and the blank, respectively.

Tab. S2 Comparison of different methods for detection of miR-155.

Detection method	Detection range	LOD	Ref.
silver nanoclusters-based fluorescence method	0.2 nM-30 nM	0.1 nM	41
graphene quantum dot-based electrochemical method	1 fM-100 pM	0.14 fM	42
dual signal amplification-based electrochemical method	10 fM-1 nM	3.3 fM	43
Pd nanoparticles-based electrochemical method	5.6 pM-56 μM	1.87 pM	44
quantum dots barcodes-based electrochemical method	50 fM-30 pM	12 fM	45
3D graphene films-based electrochemical method	0.01 nM-1.0 μM	5.2 pM	46
our method	5 aM-500 fM	3.9 aM	---

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