Supporting Information

Multiplexed detection of nucleic acids by tuning DNA-scaffolded silver nanoclusters

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Table S1. Sequences of the nucleic acids.

Name	Sequence* (5′→3′)
T1	ATCGGGGGCGATACGTGACTCTCAACATCAGTCTGATAAGCTATCGTGACTCTCAA CATCAGTCTGATAAGCTAA-Pi
T2	TTGGGCGGGTGGGTGGGTCTTGACTCCCATCTTTACCAGACAGTGTTATCTTGACTC CCATCTTTACCAGACAGTGTTA-Pi
C1	TACGCCCCCGAT
C2	CCCACCCACCCGCCCAA
miR-21	UAGCUUAUCAGACUGAUGUUGA
miR-141	UAACACUGUCUGGUAAAGAUGG
miR-429	UAAUACUGUCUGGUAAAACCGU
miR-200b	UAAUACUGCCUGGUAAUGAUGA
let-7d	AGAGGUAGUAGGUUGCAUAGUU
DNA-21	TAGCTTATCAGACTGATGTTGA
M1-DNA-21	TAGCTTATCA<u>C</u>ACTGATGTTGA
M2-DNA-21	TAGCT<u>G</u>ATCA<u>C</u>ACTGATGTTGA
M3-DNA-21	TAGCT<u>G</u>ATCA<u>C</u>ACTGA<u>A</u>GTTGA
DNA-141	TAACACTGTCTGGTAAAGATGG
M1-DNA-141	TAACACTGTC<u>A</u>GGTAAAGATGG
M2-DNA-141	TAACA<u>G</u>TGTC<u>A</u>GGTAAAGATGG
M3-DNA-141	TAACA<u>G</u>TGTC<u>A</u>GGTAA<u>C</u>GATGG

* The mutation bases are indicated in underlined portion.

Table S2. Determination of miR-21 and miR-141 in cell lysates

	Cell lines ($\times 10^5$)	Detected (pM)	Added (pM)	Found (pM)	Recovery rate (%)
miR-21	BEL-7404	22.1	20	44.4	105.3
			30	51.6	99.1
miR-141	BEL-7404	14.0	10	25.2	105.1
			20	35.1	103.4
miR-21	AsPc-1	147.5	100	258.4	104.4
			200	337.9	97.2
miR-141	AsPc-1	58.7	50	112.2	103.3
			100	154.5	97.4

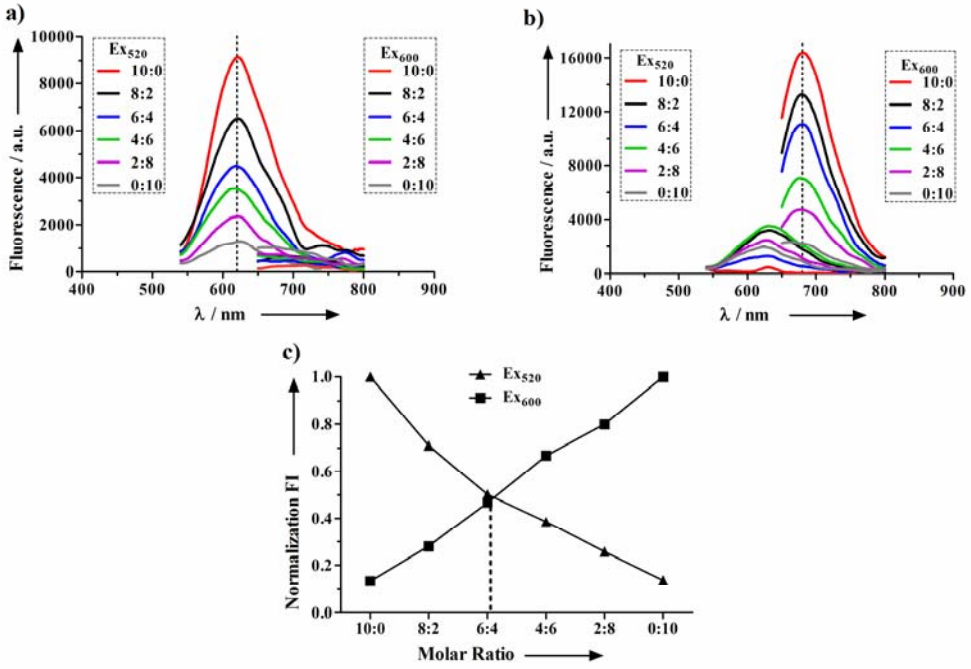

Figure S1. Emission spectra representing the fluorescent DNA/AgNCs probes scaffolded with the products from the TIEAR using different concentration ratios of template $\mathbf{T_1/T_2}$ (10:0, 8:2, 6:4, 4:6, 2:8, and 0:10, with a total concentration of 200 nM) in the presence of a) 1 nM miR-21 and b) 1 nM miR-141 with excitation at 520 nm and 600 nm, respectively. c) Plot of the normalization fluorescence intensity of the resultant fluorescent DNA/AgNCs probes for data a) and data b).

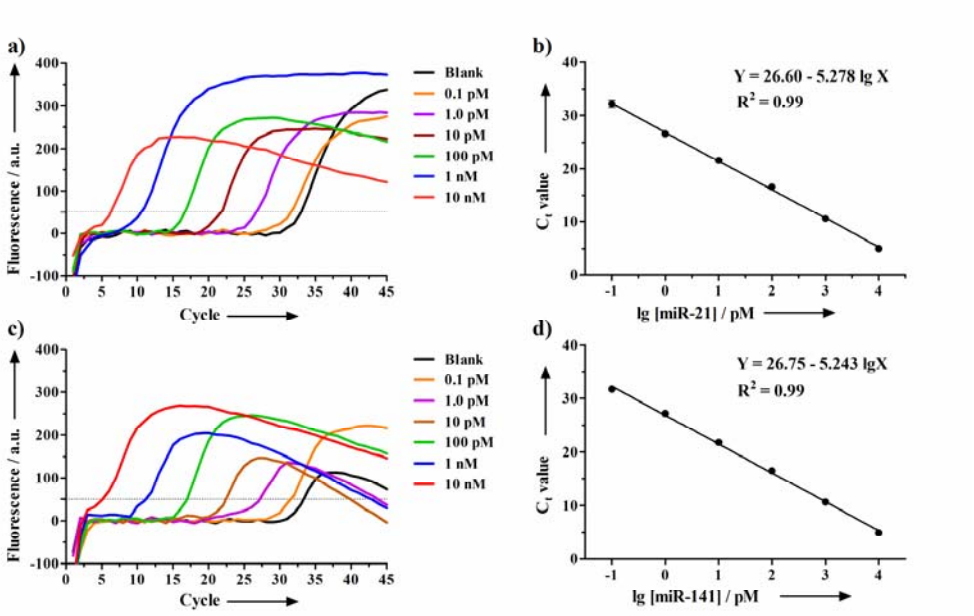

Figure S2. Quantitative real-time fluorescence monitoring of the PCR amplification reaction triggered by different concentrations of a) miR-21 and c) miR-141 in the range from 0.1 pM to 10 nM, respectively; Variance of the C_t value as a function of the concentration of b) miR-21 and d) miR-141, respectively. Quantitative real-time PCR C_t was analyzed by CFX software version 1.1 (Bio-Rad, Hercules, CA, USA).

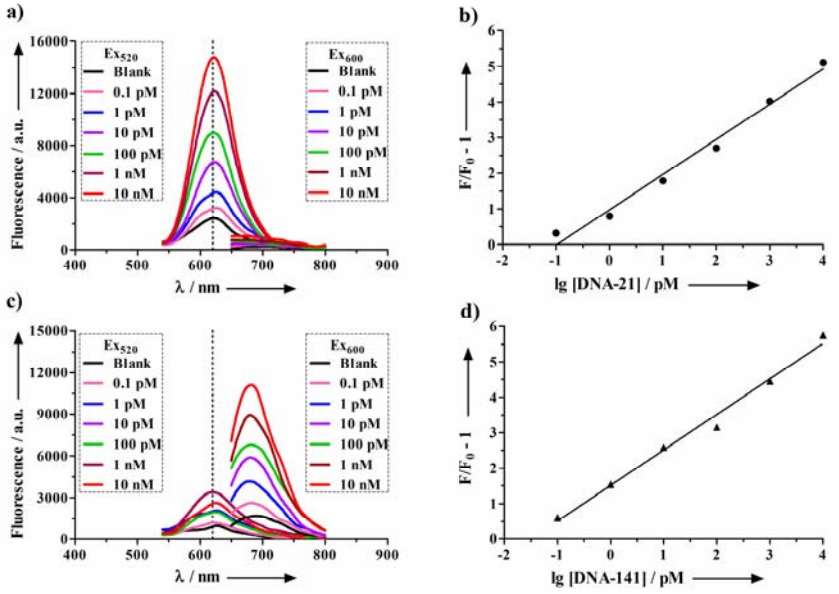

Figure S3. Emission spectra representing the dose-response fluorescent DNA/AgNCs scaffolded with the products from the TIEAR with different concentrations of a) DNA-21 and c) DNA-141 in the range from 0.1 pM to 10 nM, upon excitation at 520 nm and 600 nm, respectively. Plot of fluorescence ratio (F/F_0-1) of the resultant fluorescent DNA/AgNCs at 620 nm (excitation at 520 nm) scaffolded with the product from the TIEAR with different concentrations of b) DNA-21 and d) DNA-141. Note: the sequence of DNA-21 and DNA-141 were the same as that of miR-21 and miR-141, except for the change of U to T and the change of ribonucleotides to deoxyribonucleotides, respectively.

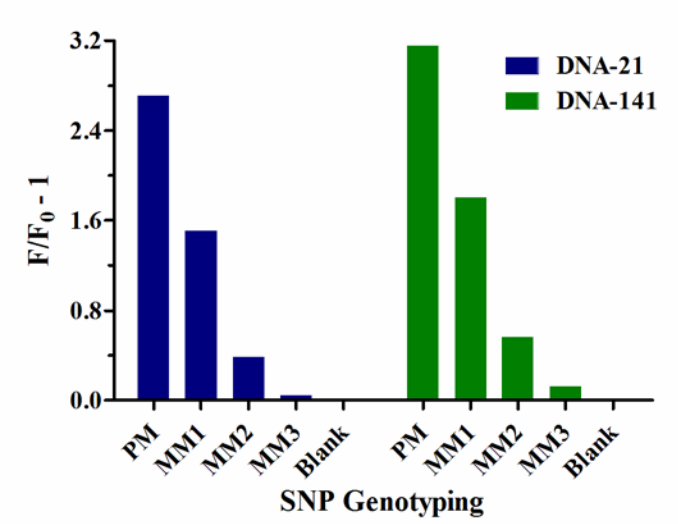

Figure S4. Bars represent the fluorescence ratio (F/F_0 -1) of the resultant fluorescent DNA/AgNCs probes scaffolded with the products from the TIEAR with different DNA-21 inputs (blue bars) including perfect-matched target (PM) and mismatched targets (MM1, MM2, MM3) at 620 nm (excitation at 520 nm) and different DNA-141 inputs (green bars) including perfect-matched target (PM) and (MM1, MM2, MM3) at 680 nm (excitation at 600 nm), respectively.