

Supporting Information for

A Ratiometric Fluorescent DNA Radar Based on Contrary Response of DNA/Silver Nanoclusters and G-Quadruplex/Crystal Violet

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Table S1. All the sequences used in experiment.	
DNA sequences	5'-3'
Probe-0bp	CCCCACCCACCCACCCATTGGGTAGGGTAGGGTTA GGG
Probe-8bp	CCCCACCCACCCACCCATT <u>TCAACATCGGG</u> TAGGGT TAGGGTTAGGG
Probe-15bp	CCCCACCCACCCACCCAT <u>CAACATCAGTCTGAGG</u> TT AGGGTTAGGGTTAGGG
Probe-22bp	CCCCACCCACCCACCCATT <u>TCAACATCAGTCTGATAA</u> <u>GCTAGGG</u> TTAGGGTTAGGGTTAGGG
Probe-29bp	CCCCACCCACCCACCCATT <u>TTTTTCAACATCAGTCTGA</u> <u>TAAGCTATTTTGGG</u> TTAGGGTTAGGGTTAGGG
Probe-36bp	CCCCACCCACCCACCCATT <u>TTTTTTTTTCAACATCAGTC</u> <u>TGATAAGCTATTTT</u> TTGGGTTAGGGTTAGGGTTAGGG
C _{8bp}	GATGTTGA
C _{15bp}	TCAGACTGATGTTGA
C _{22bp}	TAGCTTATCAGACTGATGTTGA
C _{29bp}	AAAATAGCTTATCAGACTGATGTTGAAAA
C _{36bp}	AAAAAATAGCTTATCAGACTGATGTTGAAAAAAA
Probe halfG4	CCCCACCCACCCAT <u>CAACATCAGTCTGATAAGCTATGG</u> GTAGGG
Probe nonG4	CCCCACCCACCCAT <u>CAACATCAGTCTGATAAGCTA</u>
Probe 368	CCCTTTAACCCTTCCCTCTGGTCAACCAGTCACAGGGT TAGGGTTAGGGTTAGGG
T	T GTG ACT GGT TGA CCA GAG GGG
C1	TCAC AGT GAA CCG GTC TCT TTC
C2	TCTCACACAGAAATCGCACCCGT
C3	TAAGGTGCATCTAGTGCAGTTAG
C4	TGTAAACATCCTTGACTGGAAG

C5	TGAGATGAAGCACTGTAGCTC
C6	CAGCAGCAATTTCATGTTTTGAA
C7	ATGCTTATCAGCTGATGTTGA

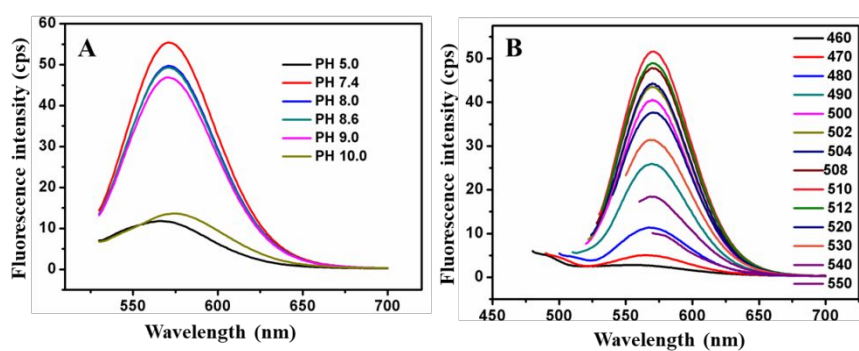


Figure S1. Fluorescence spectra of AgNCs under different pH values (A) and excitation wavelength (B).

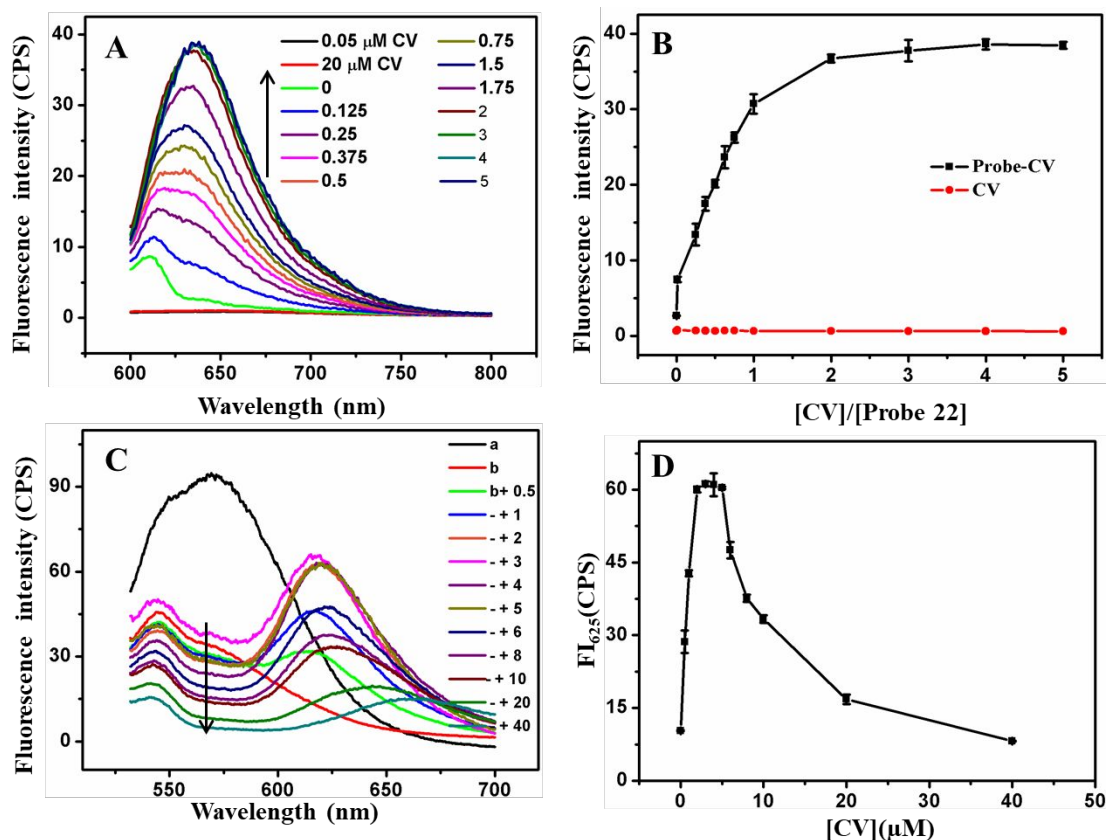


Figure S2. The effect of stoichiometry of CV/Probe-22 bp on the fluorescence intensity and optimization of CV concentration in ratiometric sensing system. The concentration of probe, Com was 1.5 μM .

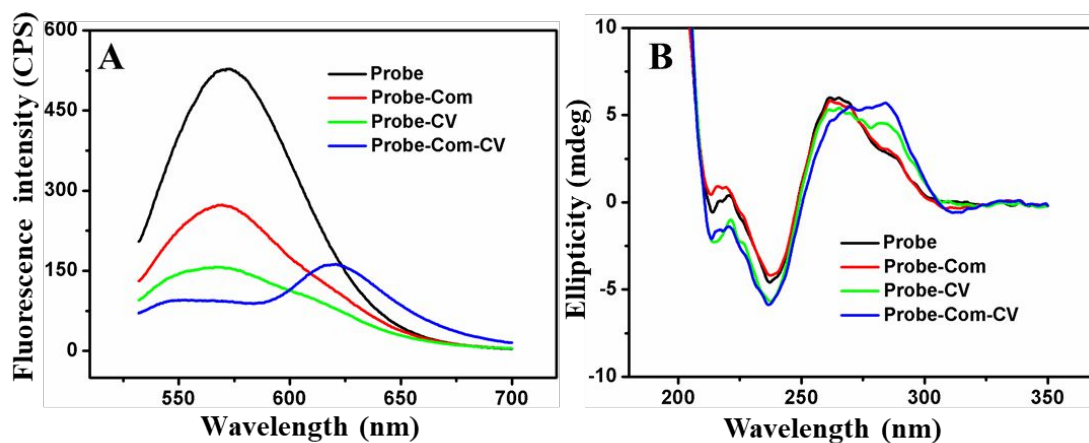


Figure S3. (A) Fluorescent and circular dichroism (B) spectra of probe, probe-Com, probe-CV, probe-Com-CV. The concentrations of probe, Com, CV were 5 μM , 5 μM and 50 μM , respectively.

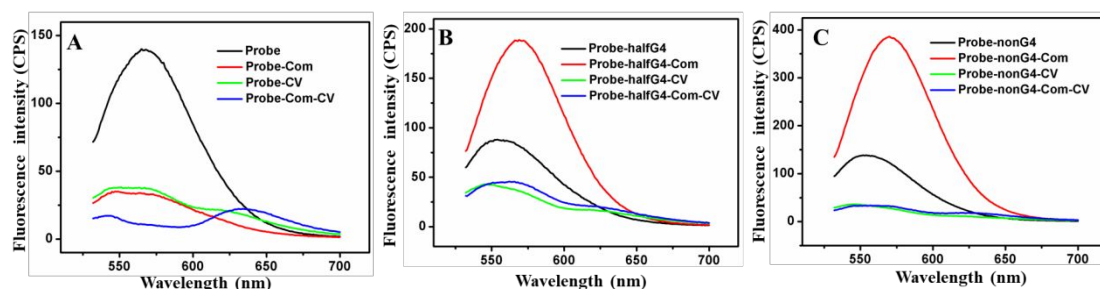


Figure S4. Fluorescence spectra of different control sequences (probe-22 bp (A), probe halfG4 (B), probe nonG4 (C)) in presence of complementary strand, CV, complementary strand and CV, respectively.

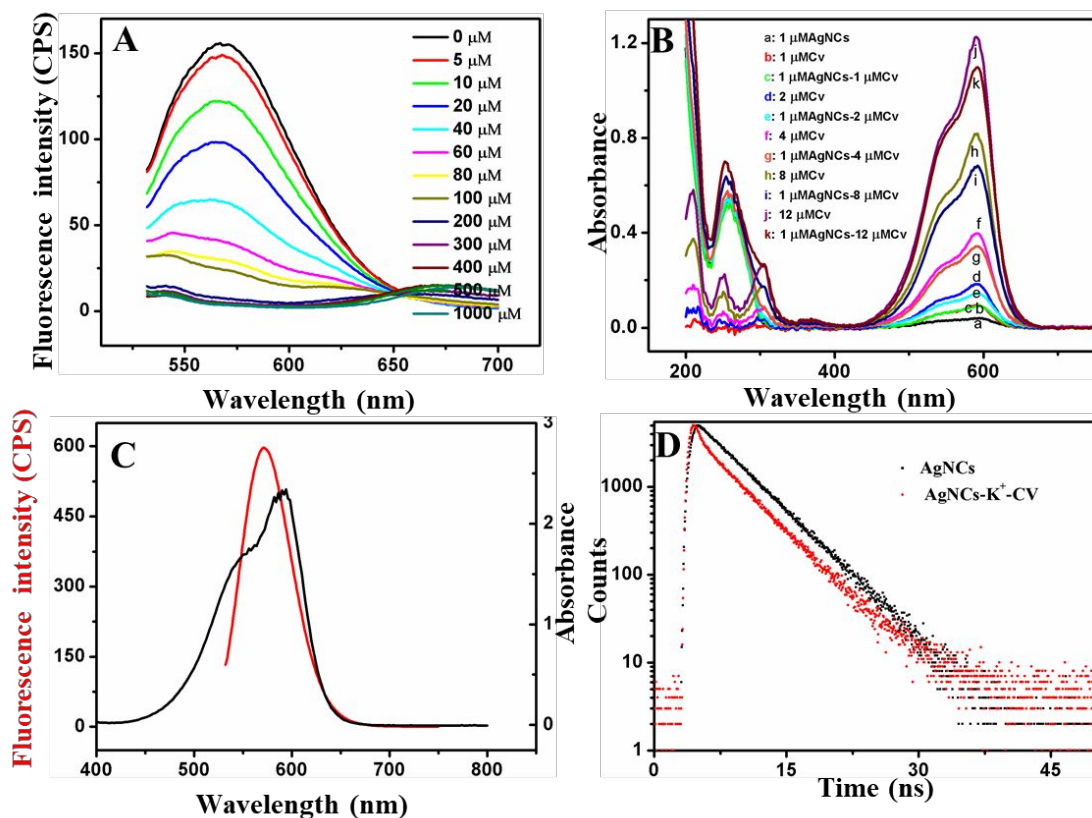


Figure S5. (A) Fluorescent spectra and (B) UV-vis absorption of AgNCs in different concentration of CV. (C) Spectral overlap between fluorescence emission (red line) of AgNCs ($\lambda_{ex}=512$ nm) and absorbance spectra of CV (black line). (D) Fluorescent lifetime of AgNCs in absence and presence of CV.

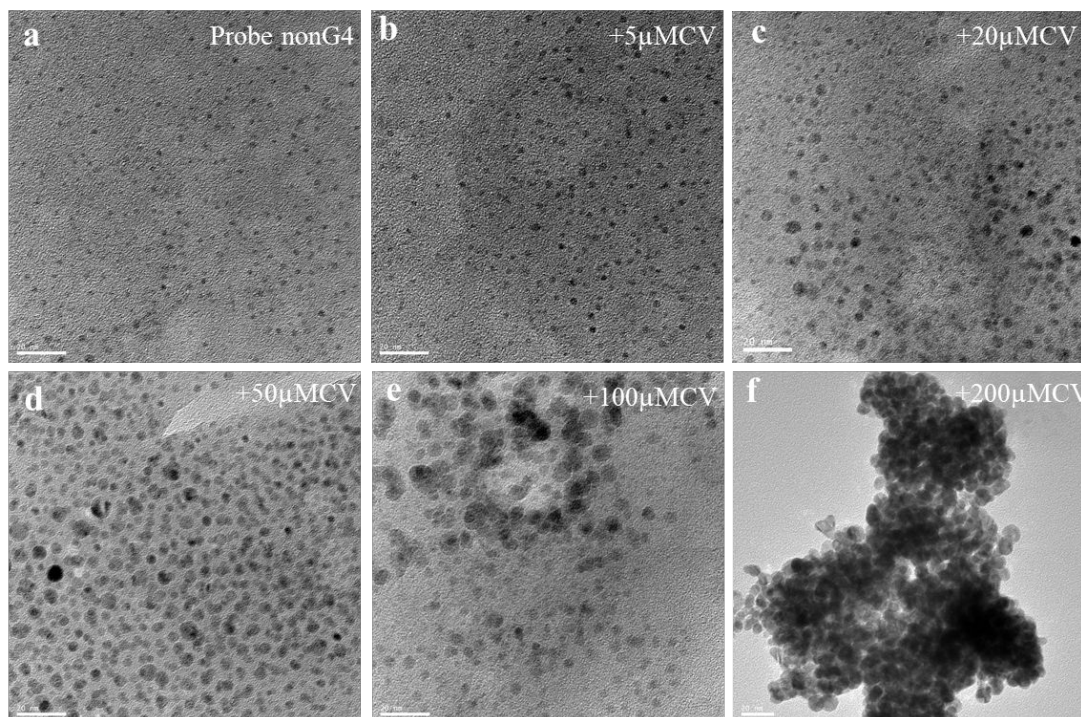


Figure S6. HR-TEM of AgNCs templated with Probe nonG4 in different concentration of CV. The concentration of DNA and gradient CV were 1.5, 5, 20, 50, 100, 200 μM , respectively. All the bar represent 20 nm.

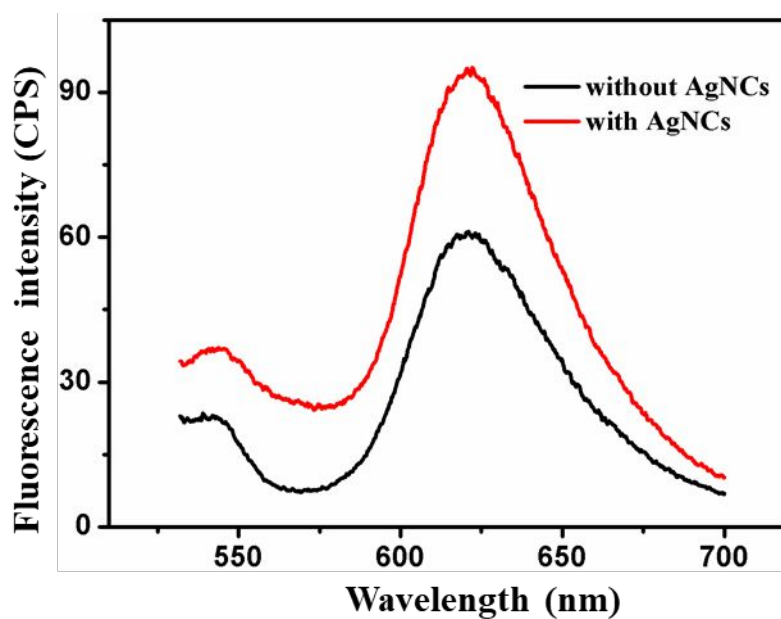


Figure S7. Fluorescence spectra of Probe_T before and after preparing AgNCs. The concentrations of DNA template, its complementary and CV were 5 μM , 5 μM , and 10 μM , respectively.

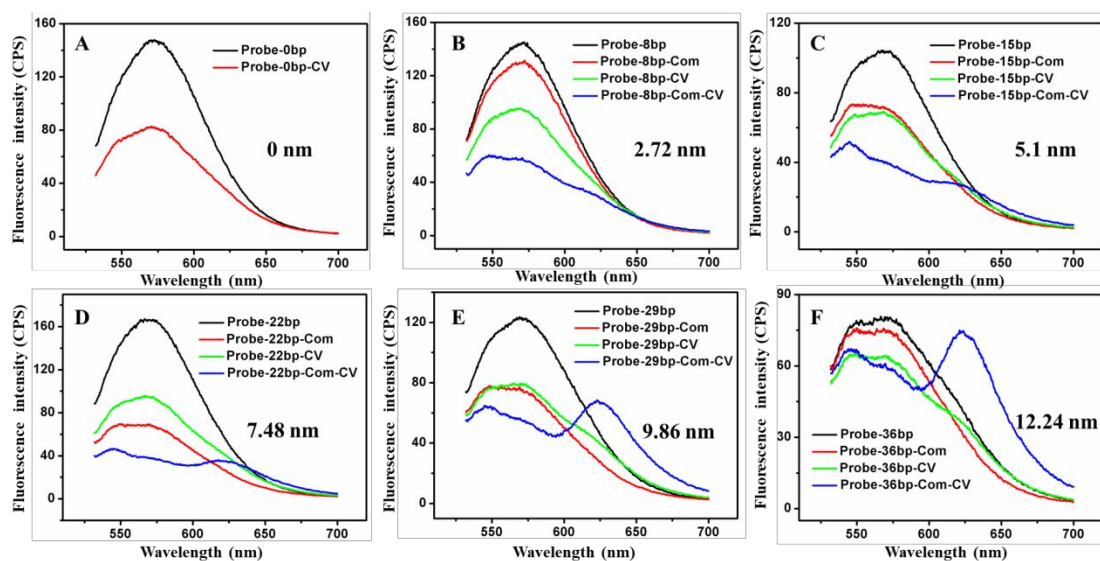


Figure S8. The relationship of sequence length with the fluorescence quenching and the appearance of a new emission. The concentration of DNA, Com, and CV were 1.5, 4, and 3 μM , respectively.

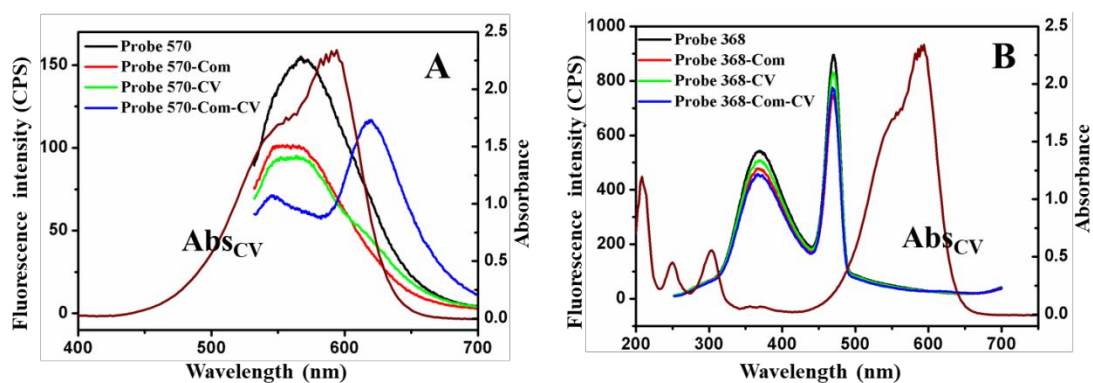


Figure S9. The effect of spectral overlap on the fluorescence quenching and the appearance of a new emission. The concentration of DNA, Com, and CV were 1.5, 4, and 3 μM , respectively.

Table S2. Recovery Test Results of target DNA in 1% Human Serum Samples

Samples	Spiked (μM)	Found (μM)	Recovery (%)	RSD (n=3.%)
1	0	-	-	-
2	0.5	0.569	113.8	0.29
3	0.75	0.798	1.064	5.22
4	1	0.950	95	4.61
5	1.25	1.240	99.2	1.41