

Supporting Information

G-quadruplex enhanced fluorescence of DNA-silver nanoclusters and its application in bioimaging

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Experiment details

UV-Vis absorption spectroscopy

The absorption spectra of 5 μ M DNA-AgNCs were measured in 10 mm pathlength cuvettes from 300 to 700 nm on a Cary 60 UV/Vis Spectrophotometer (Agilent Technologies, USA).

Circular dichroism measurements

CD Spectra were recorded from 210 to 330 nm for 5 μ M DNA strands and DNA-AgNCs in 1 mm pathlength cuvettes on a JASCO J-820 spectropolarimeter (Tokyo, Japan) at room temperature. The data were averaged from three scans.

Table

Table S1. Excitation and emission wavelengths of various DNA-AgNCs and their fluorescence emission intensity.

AgNCs	$\lambda_{\text{ex/em}}$ (nm)	FI (a.u.)
C9-AgNCs	477/555	5.25
	556/606	7.20
C9/G9-AgNCs	517/583	43.54
C9/G12-AgNCs	515/579	50.23
C9/G9A-AgNCs	470/542	7.36
	515/580	5.20
	558/600	10.12
C12-AgNCs	478/558	4.22
	550/597	23.09
C12/G9-AgNCs	515/577	339.11
C12/G12-AgNCs	515/577	430.4
C12/G9A-AgNCs	507/570	39.66
C3A-AgNCs	661/722	37.18
	727/763	52.05
C-T30695-AgNCs	514/585	191.72
C-AS1411-AgNCs	521/582	451.96
C-TBA-AgNCs	512/575	242.13

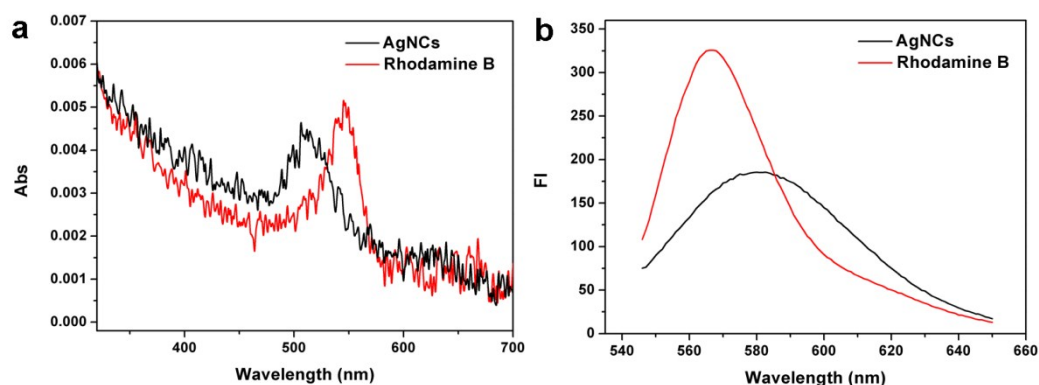
Table S2. Sequences of DNA strands used for comparing with Yeh's work.^{4,5}

Strand	Sequence
C12	CCCACCCACCCACCCA GAGATGCTGC
G12	GCAGCATCTC GGGTGGGTGGGTGGGT
GAS	GCAGCATCTC GGTGGTGGTGGTTGTGGTGGTGGTGG
YG15	GCAGCATCTC GGGTGGGTGGGGTGGGG
YC-YG15	CCCTTAATCCCC TT GGGTGGGTGGGGTGGGG
C-YG15	CCCACCCACCCACCCA TT GGGTGGGTGGGGTGGGG
C-AS1411	CCCACCCACCCACCCA TT GGTGGTGGTGGTTGTGGTGGTGGTGG

Table S3. Excitation and emission wavelengths of various DNA-AgNCs and their fluorescence emission intensity for comparing with Yeh's work.^{4,5}

AgNCs	$\lambda_{\text{ex/em}}$ (nm)	FI (a.u.)
C12-AgNCs	478/558	4.32
	550/597	34.1
C12/G12-AgNCs	515/577	319.9
C12/GAS-AgNCs	518/582	148.7
C12/YG15-AgNCs	522/590	169.3
YC-YG15-AgNCs	613/672	188.8
C-YG15-AgNCs	520/592	161.3
C-AS1411-AgNCs	521/583	352.2

Figures

**Figure S1.** Calculation of the quantum yield of AgNCs with rhodamine B in ethanol as reference standard.¹ (a) Absorption spectra and (b) fluorescence spectra excited at 533 nm (the wavelength of intersection point in the absorption spectra) of C12/G12-AgNCs and rhodamine B. Quantum yield of rhodamine B at room temperature is 50%.^{2,3}

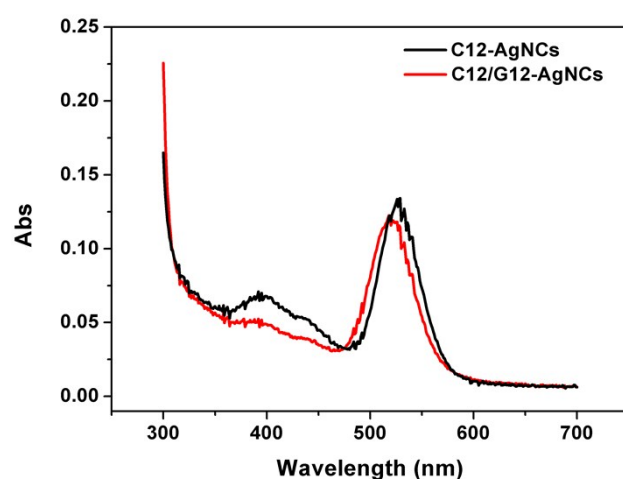


Figure S2. Absorption spectra of 5 μM C12-AgNCs and C12/G12-AgNCs in PB buffer.

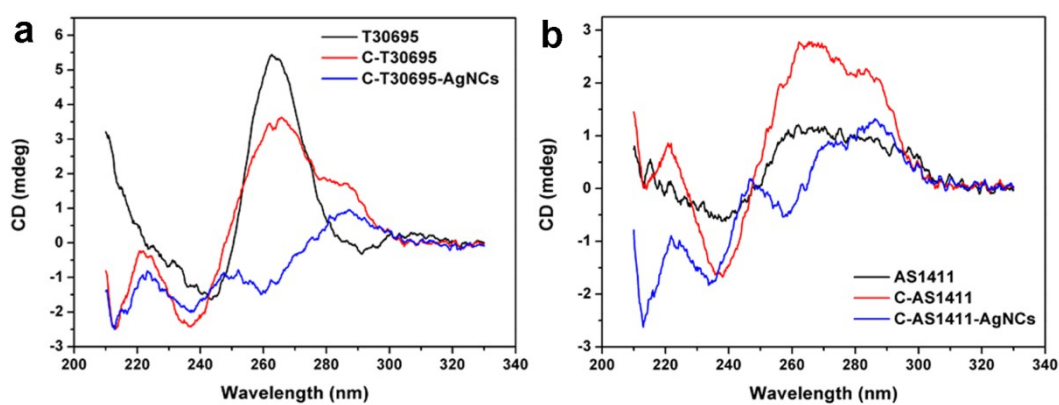


Figure S3. CD spectra of DNA strands and DNA-AgNCs. The concentration of DNA strands and DNA-AgNCs all were 5 μM .

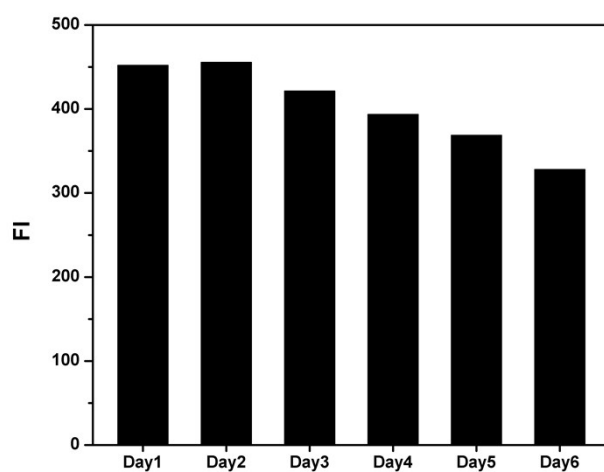


Figure S4. Change of the fluorescence intensity of C-AS1411-AgNCs at 580 nm in a week.

References

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