pH/T_m	5.5/ ℃		6.0/ ℃		6.5/ ℃		7.0/ ℃		7.5/ ℃	
	T_m1	T_m2	T_m1	T_m2	T_m1	T_m2	T_m1	T_m2	T_m1	T_m2
T1	64.1		49.4	67.4	37.6	67.2	24.4	66.5	67.4	
3:1	70.1		51.5	69.1	39.6	68.4	26.7	68.1	67.6	
6:1	none		53.2	69.3	40.1	68.6	41.8	68.1	67.6	
9:1	none		67.9*		42.3	68.9	67.4*		68.1	
11:1	none		68.4*		45.1	69.1	68.4*		68.4	

[*] the T_m1 and T_m2 were almost cooperatively.

Table S1. The melting T1-AgNCs complexes with different ratios of Ag ion binding to triplex, then reduction by $NaBH_4$.

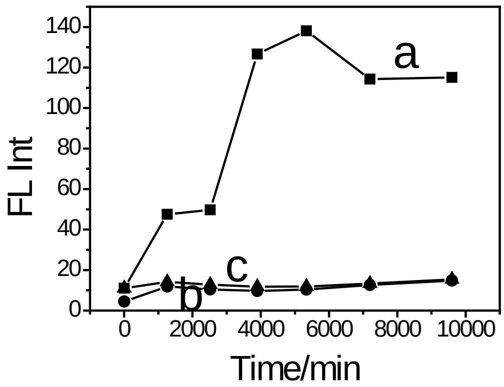

Figure S1. The variation in the fluorescence intensities of AgNCs formed in (a) triplex DNA (T1); (b) duplex DNA(D1) and (c) S1 solution as a function of time (λ_{ex}= 480nm/λ_{em}= 534nm). [DNA]= 2μM, [$AgNO_3$]= 12μM, [$NaBH_4$]=48μM.

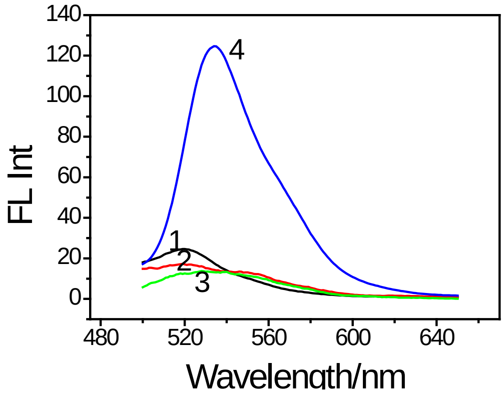

Figure S2. Fluorescence emission spectra acquired for (1) T2, (2) D2, (3) single strand S2 solutions, (4) T1, upon excitation at 480nm. [DNA]= 2μM, [$AgNO_3$]= 12μM, [$NaBH_4$]=48μM.

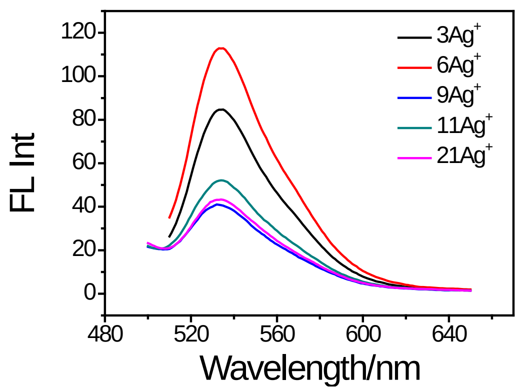

Figure S3. Dependence of the fluorescence intensity on the ratio of Ag (I) ions to triplex DNA (λ_{ex}= 480nm/λ_{em}= 534nm). [DNA]= 2μM.

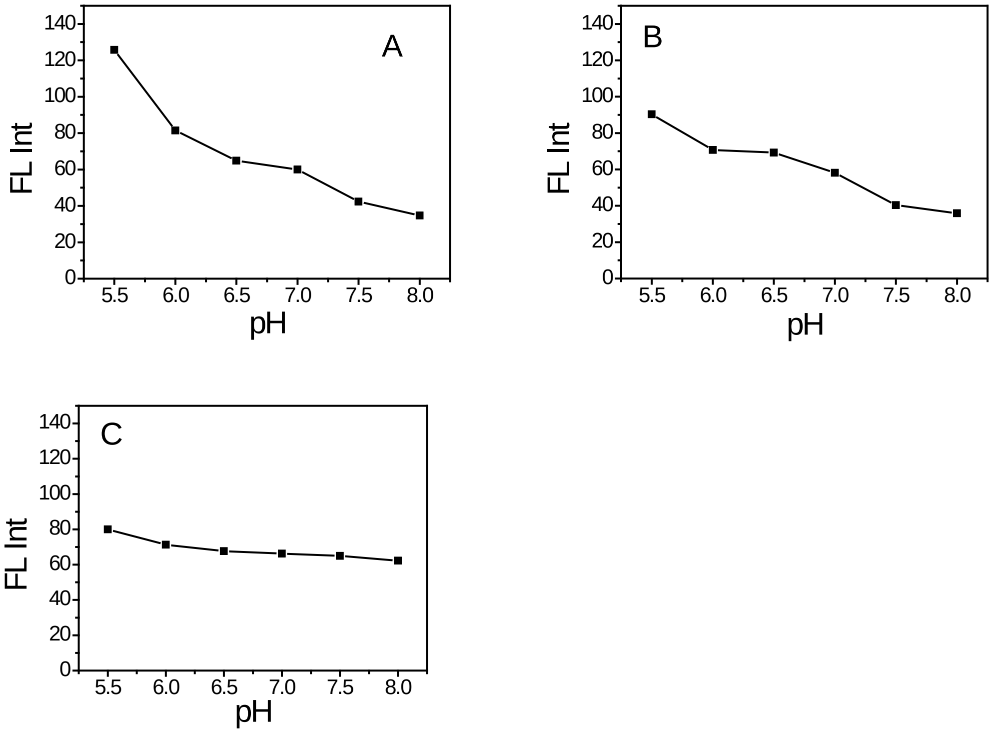

Figure S4. Dependence of the fluorescence intensity of AgNCs (A) acquired in solution with different pH values. (B) Dilution of the AgNCs in solution with different pH values. (C) Dilution of the AgNCs samples prepared at different pH values in neural solution. (λ_{ex}= 480nm/λ_{em}= 534nm). [DNA]= 2μM, [$AgNO_3$]= 12μM, [$NaBH_4$]=48μM.

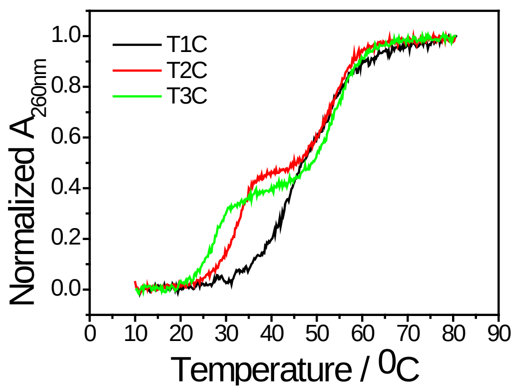

Figure S5. UV melting curves of T1C, T2C and T3C in solution (pH=6).

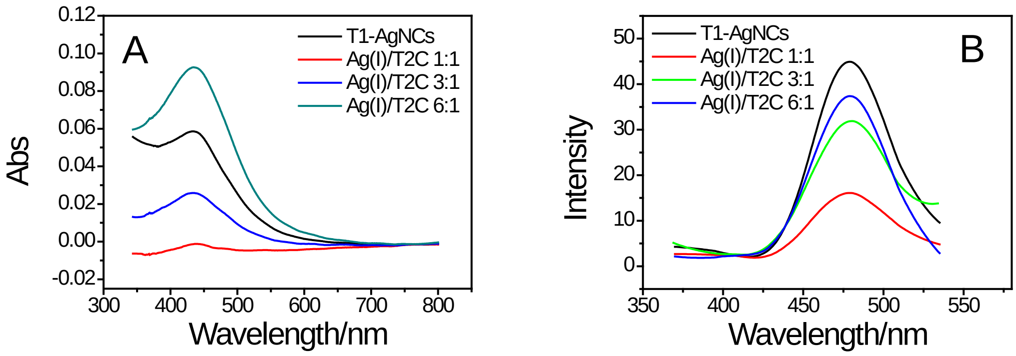

Figure S6. (A) Absoption and (B) excitation of spectrum studies of T1-AgNCs and the T2C-AgNCs in different Ag(I) ions/T2C ratio of 1:1, 3:1 and 6:1. [DNA]= 2μM.

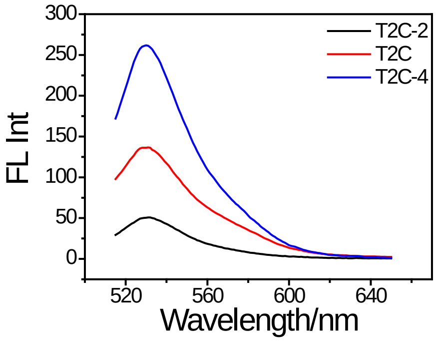

Figure S7. The influence of the number of the set of two successive CG.C^{+} triplets on AgNCs synthesis. The triplex DNA T2C-2, T2C and T2C-4 contain two , three and four sets of two successive CG.C^{+} triplets , respectively (λ_{ex}= 480nm) . [DNA]= 10μM, [$AgNO_3$]= 80μM, [$NaBH_4$]=320μM.

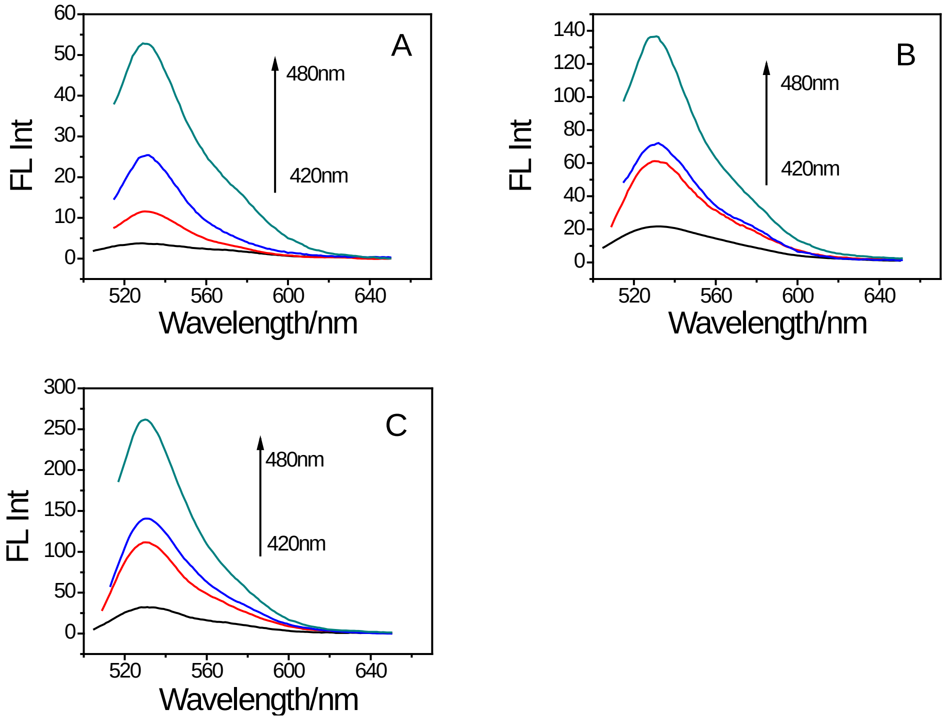

Figure S8. The FL spectra of (A) T2C-2-AgNCs (B) T2C-AgNCs (C) T2C-4-AgNCs upon excitation at 420nm ,440nm,460nm,480nm ,respectively. [DNA]= 10μM, [$AgNO_3$]= 80μM, [$NaBH_4$]=320μM.

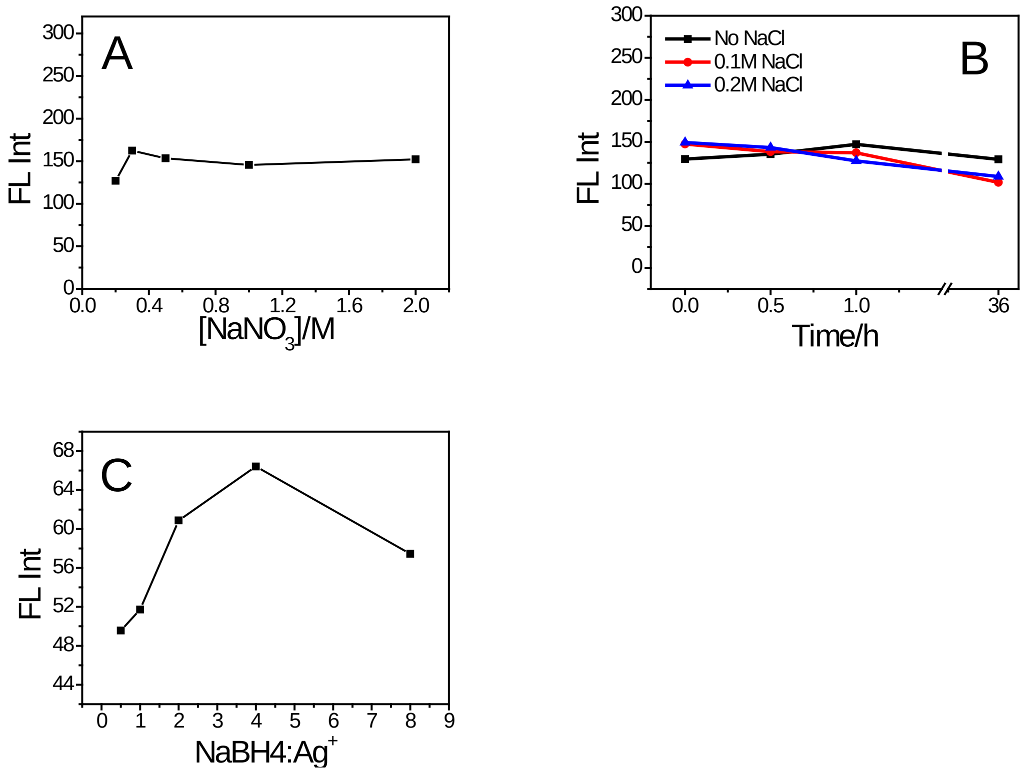

Figure S9. (A) Fluorescence intensity of triplex-templated AgNCs in solution over a salt concentration of 0.2M to 2M $NaNO_3$, (B) 0, 0.1 and 0.2M NaCl for a period of 36h. (C) Dependence of the fluorescence intensity with different $NaBH_4$ reduction ((λ_{ex}= 480nm/λ_{em}= 534nm). [DNA]= 2μM, [$AgNO_3$]= 12μM, [$NaBH_4$]=48μM.

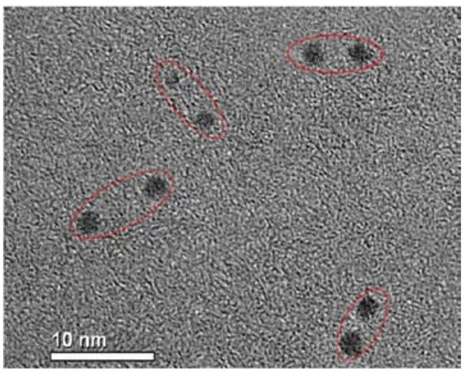

Figure S10. TEM image of the diluted sample (10 folds) of AgNCs dimers formed on 59-mer DNA. [DNA]= 2μM, [$AgNO_3$]= 12μM, [$NaBH_4$]=48μM.

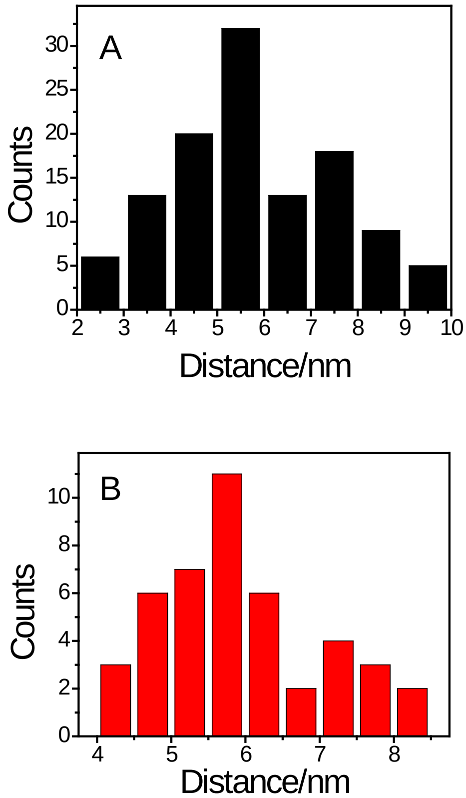

Figure S11. (A) Distance between two AgNCs distribution histogram of the 59-mer DNA, the number of cluster counts for the histogram was 180. (B) Distance of the dilution 59-mer DNA solution, the number of cluster counts for the histogram was 44 and a separation distance was 5.88±1.19 nm. [DNA]= 2μM, [$AgNO_3$]= 12μM, [$NaBH_4$]=48μM.

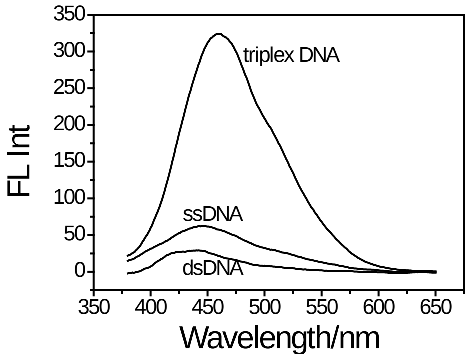

Figure S12. Fluorescence emission spectra acquired for 59-mer DNA-AgNCs upon excitation at 360nm. [DNA]= 2μM, [$AgNO_3$]= 12μM, [$NaBH_4$]=48μM.