

Electronic Supporting Information

Interaction between Calf Thymus DNA and Cationic Bottle-Brush Copolymers: Equilibrium and Stopped-Flow Kinetic Studies

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Table S1: The size data for the polyplexes at various charge ratios. Deconvolutions of the autocorrelation function were carried out using CONTIN software.

Z_{+/-}	Size 1 (nm)	Size 2 (nm)
BBCP31		
0	780.2 (100%)	-
0.4	309.0 (49.7%)	76.0 (50.3%)
0.6	255.0 (75.5%)	77.0 (40.6%)
1.0	216.4 (86.1%)	63.0 (13.9%)
2.0	906.0 (100.0 %)	-
6.0	2104.0 (100%)	-
9.0	1627.0 (100%)	-
12.0	1932.0 (100%)	-
BBCP16		
0	785.0 (100%)	-
0.4	295.3 (44.8%)	85.7 (55.2%)
0.6	143.4 (89.9%)	39.7 (10.1%)
1.0	137.6 (93.8%)	21.5 (6.2%)
2.0	1080 (58.7%)	339.9 (41.3%)
6.0	1931 (100%)	-
9.0	1894 (100%)	-
12.0	1526 (100%)	-

Table S2: Relative rate constants for the binding of different cationic BBCPs to *ct*DNA as a function of charge ratio, $Z_{+/-}$, at a fixed concentration of *ct*DNA and temperature.

Cationic polymer	Charge Ratio ($Z_{+/-}$)	$k_1 \times 10^1$ (S^{-1})	$k_2 \times 10^2$ (S^{-1})
PMAPTAC*	1.0	3.81 ± 0.10	1.12 ± 0.03
	3.0	6.74 ± 0.20	1.18 ± 0.03
	9.0	9.48 ± 0.20	1.47 ± 0.04
BBCP31	1.0	4.20 ± 0.03	1.53 ± 0.03
	3.0	7.16 ± 0.08	1.62 ± 0.06
	9.0	9.67 ± 0.22	2.46 ± 0.08
BBCP16	1.0	4.81 ± 0.05	2.10 ± 0.03
	3.0	7.55 ± 0.10	2.22 ± 0.06
	9.0	10.74 ± 0.24	2.54 ± 0.09

*from ref 13

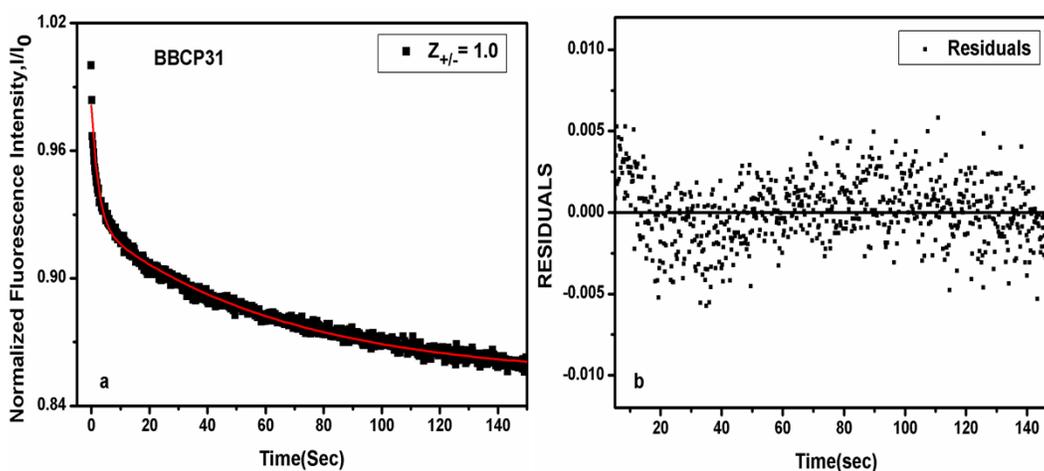


Figure S1: (a) Stopped-flow fluorescence intensity decay of *ct*DNA-BBCP31 binding at $Z_{+/-} = 1.0$ as a function of time. The smooth line in panel shows the fitting obtained with eq. 2. The residuals of the fit are shown in (b).