Supporting Information

Structural Dependence of Salt-Responsive Polyzwitterionic Brushes with Anti-polyelectrolyte Effect

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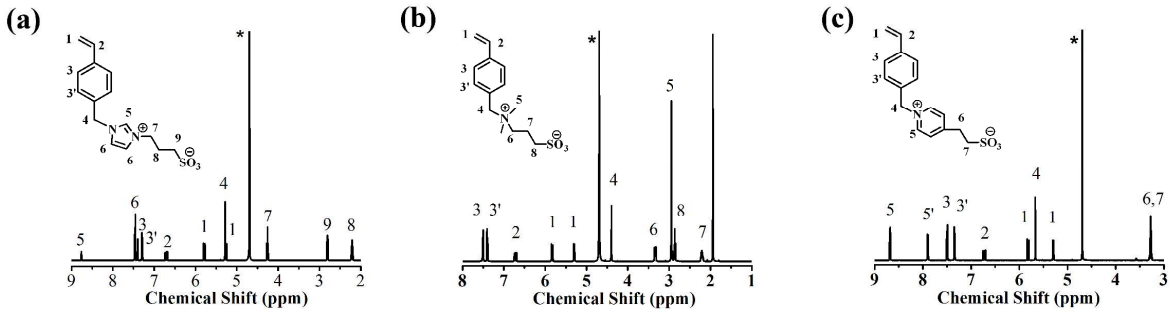


Figure S1. ^{1}H-NMR spectrum (in D_2O) of (a) VBIPS, (b) DVBAPS, and (c) SVBP monomers.

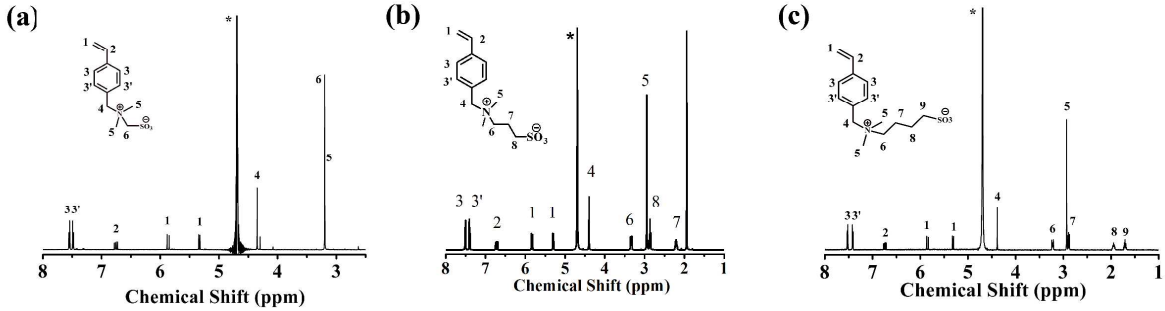


Figure S2. ^{1}H-NMR spectrum (in D_2O) of (a) DVBAMS (CSLs=1), (b) DVBAPS (CSLs=3), and (c) DVBABS (CSLs=4) monomers.

Table S1. Contact angles of polyzwitterionic brushes with different cationic moieties in water, in NaCl solutions with different concentrations, and in different salt solutions.

Polymer	NaCl/M					Anions/1.0 M				Cations/1.0 M			
brushes	0	0.05	0.53	1.0	6.1	SO_4^{2-}	Cl-	NO_3^-	Br^-	K^+	Na^+	Mg^{2+}	Ca^{2+}
polyVBIPS	62.8°	53.5°	45.3°	42.1°	42.8°	55.4°	42.1°	27.6°	27.8°	45.6°	42.1°	40.4°	38.8°
polyDVBAPS	27.1°	24.6°	16.1°	15.6°	14.8°	42.3°	15.6°	9.5°	9.6°	17.8°	15.6°	16.2°	16.7°
polySVBP	35.4°	29.3°	24.6°	23.7°	24.5°	51.8°	23.7°	21.6°	22.3°	27.6°	23.7°	23.8°	24.3°

Table S2. Contact angles of polyzwitterionic brushes with different CSLs in water, in NaCl solutions with different concentrations, and in different salt solutions.

Polymer	NaCl/M					Anions/1.0 M				Cations/1.0 M			
brushes	0	0.05	0.53	1.0	6.1	SO_4^{2-}	Cl-	NO_3^-	Br^-	K^+	Na^+	Mg^{2+}	Ca^{2+}
polyDVBAMS	46.8°	46.8°	48.5°	49.9°	57.9°	49.0°	49.0°	39.0°	35.4°	47.0°	50.0°	50.4°	49.5°
polyDVBAPS	18.7°	13.8°	13.1°	10.3°	11.2°	37.3°	10.3°	11.8°	11.0°	12.6°	10.3°	15.4°	18.5°
polyDVBABS	22.5°	19.7°	11.5°	9.6°	11.2°	36.4°	9.6°	7.6°	7.3°	7.8°	9.6°	10.2°	12.2°

Table S3. Friction coefficients of polyzwitterionic brushes with different cationic moieties in water, in NaCl solutions with different concentrations, and in different salt solutions.

Polymer	NaCl/M					Anions/1.0 M				Cations/1.0 M			
brushes	0	0.05	0.53	1.0	6.1	SO_4^{2-}	Cl-	NO_3^-	Br^-	K^+	Na^+	Mg^{2+}	Ca^{2+}
polyVBIPS	3.82	2.23	0.06	0.05	0.06	3.65	0.05	0.03	0.02	0.05	0.04	0.08	0.12
polyDVBAPS	2.51	1.43	0.04	0.04	0.05	3.25	0.04	0.01	0.01	0.04	0.03	0.09	0.18
polySVBP	3.64	1.36	0.15	0.09	0.14	4.56	0.09	0.06	0.04	0.09	0.12	0.16	0.23

Table S4. Friction coefficients of polyzwitterionic brushes with different CSLs in water, in NaCl solutions with different concentrations, and in different salt solutions.

Polymer	NaCl/M					Anions/1.0 M				Cations/1.0 M			
brushes	0	0.05	0.53	1.0	6.1	SO_4^{2-}	Cl-	NO_3^-	Br^-	K^+	Na^+	Mg^{2+}	Ca^{2+}
polyDVBAMS	1.45	1.98	1.77	1.89	4.04	2.22	1.89	1.77	0.15	1.89	1.85	0.64	0.77
polyDVBAPS	3.86	2.75	0.05	0.03	0.02	4.51	0.03	0.02	0.01	0.03	0.03	0.05	0.07
polyDVBABS	0.28	0.11	0.06	0.02	0.02	4.08	0.02	0.02	0.01	0.02	0.03	0.035	0.056