

One-pot Synthesis of pH-sensitive Poly(RGD-*co*- β -amino ester)s for Targeted Intracellular Drug Delivery

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Table S1. Aggregation properties of the Copolymers^a

Polymer	PEGDA: DEPA ^b	D _{hl} (nm) ^c	D _{h2} (nm) ^d
P7	1.1:1	174.8±63.1	N/A
P8	1.05:1	146.3±42.5	N/A
P9	1:1	65.5±22.9	13.9±2.8
P10	1:1.1	123.0±48.6	N/A
P11	1.1:1	52.4±21.2	137.8±48.9
P12	1.05:1	94.1±32.6	17.2±4.3
P13	1:1	54.9±19.4	11.1±1.0
P14	1:1.05	81.5±16.1	17.1±6.8
P15	1:1.1	67.7±25.2	1.5±0.5

^a Copolymerization conditions: Michael addition, DMSO, 5 d, 50 °C. ^b Molar feed ratio; PEGDA700 was used for **P7-P10**, and PEGDA575 was used for **P11-P15**. ^c Hydrodynamic diameter measured by DLS for the copolymer nanoparticle dispersions (2.0 mg/mL, pH 7.4, 10 mM PB). ^d Hydrodynamic diameter measured by DLS for the copolymer nanoparticle dispersions (2.0 mg/mL, pH 5.0, 50 mM acetate buffer solution).

Table S2. Aggregation properties of the Copolymers^a

Polymer	PEGDA: DEDA: DEPA ^b	D _{h1} (nm) ^c	D _{h2} (nm) ^d
P16	0.9: 0.1: 1	63.1±24.1	19.9±4.6
P17	0.85: 0.15:1	103.3±36.2	13.3±2.8
P18	0.8: 0.2:1	96.5±23.4	1.2±0.2
P19	0.75:0.25:1	111.4±41.8	38.3±15.2
P20	0.7:0.3:1	114.5±40.9	27.6±10.6
P21	0.9: 0.1: 1	244.3±42.6	N/A
P22	0.85: 0.15:1	225.5±34.0	N/A
P23	0.8: 0.2:1	198.6±53.3	N/A
P24	0.75:0.25:1	169.2±58.0	N/A
P25	0.7:0.3:1	160.8±43.0	N/A

^a Copolymerization conditions: Michael addition, DMSO, 5 d, 50 °C. ^b Molar feed ratio; PEGDA700 was used for **P16-P20**, and PEGDA575 was used for **P21-P25**. ^c Hydrodynamic diameter measured by DLS for the copolymer nanoparticle dispersions (2.0 mg/mL, pH 7.4, 10 mM PB). ^d Hydrodynamic diameter measured by DLS for the copolymer nanoparticle dispersions (2.0 mg/mL, pH 5.0, 50 mM acetate buffer solution).

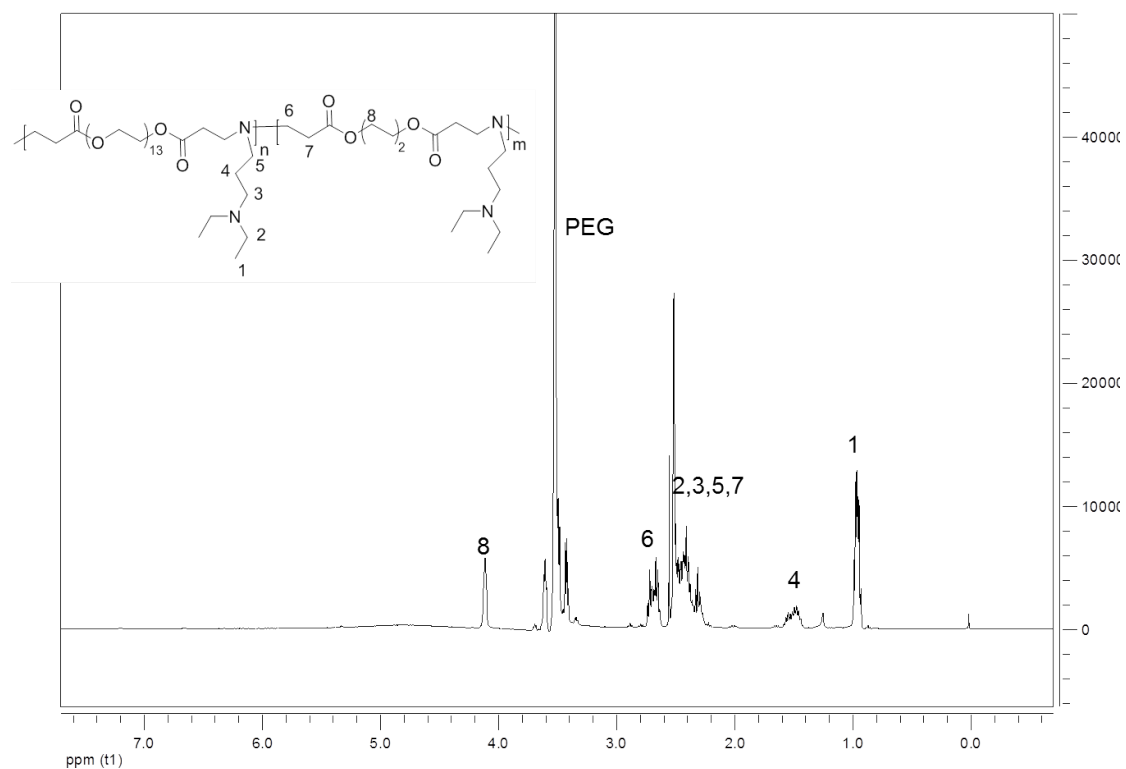


Figure S1. ¹H NMR spectrum of poly(β -amino ester)s copolymers (**P3**) in d⁶-DMSO.

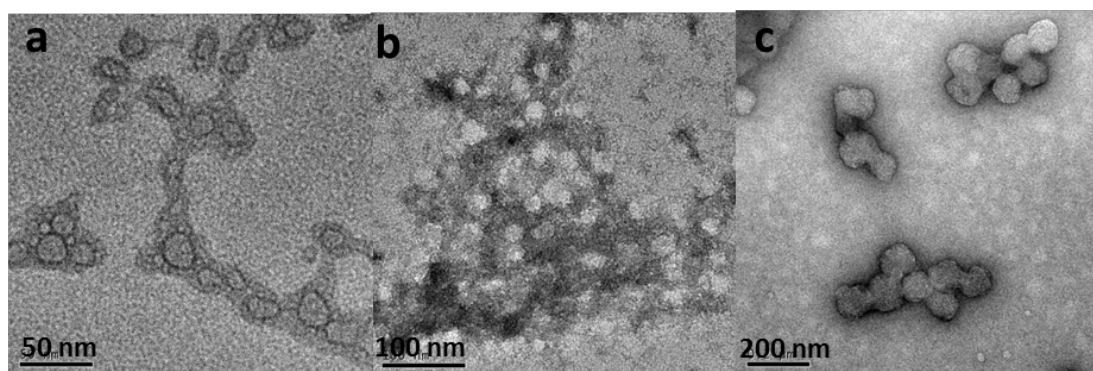


Figure S2. TEM images of P2 (a), P3 (b) and P4 (c) nanoparticles in aqueous solutions. Copolymer concentration: 1.0 mg/mL.

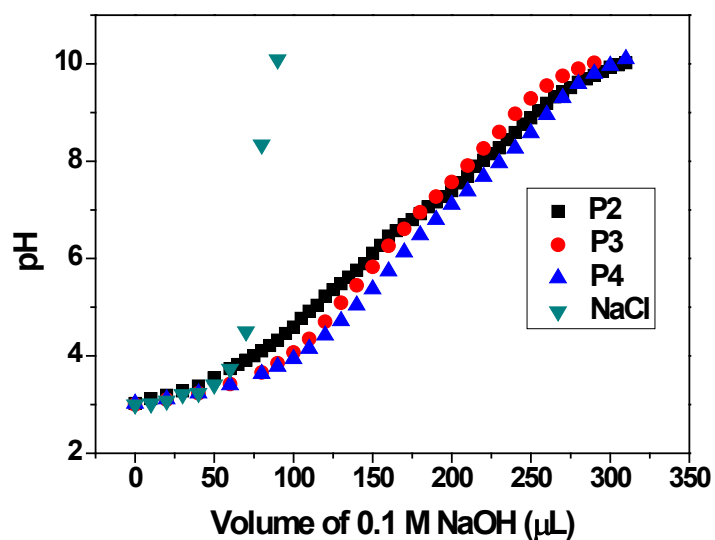


Figure S3. Titration curve of copolymer **P2-P4** (1.0 mg/mL) obtained by adding 0.1M NaOH at room temperature.

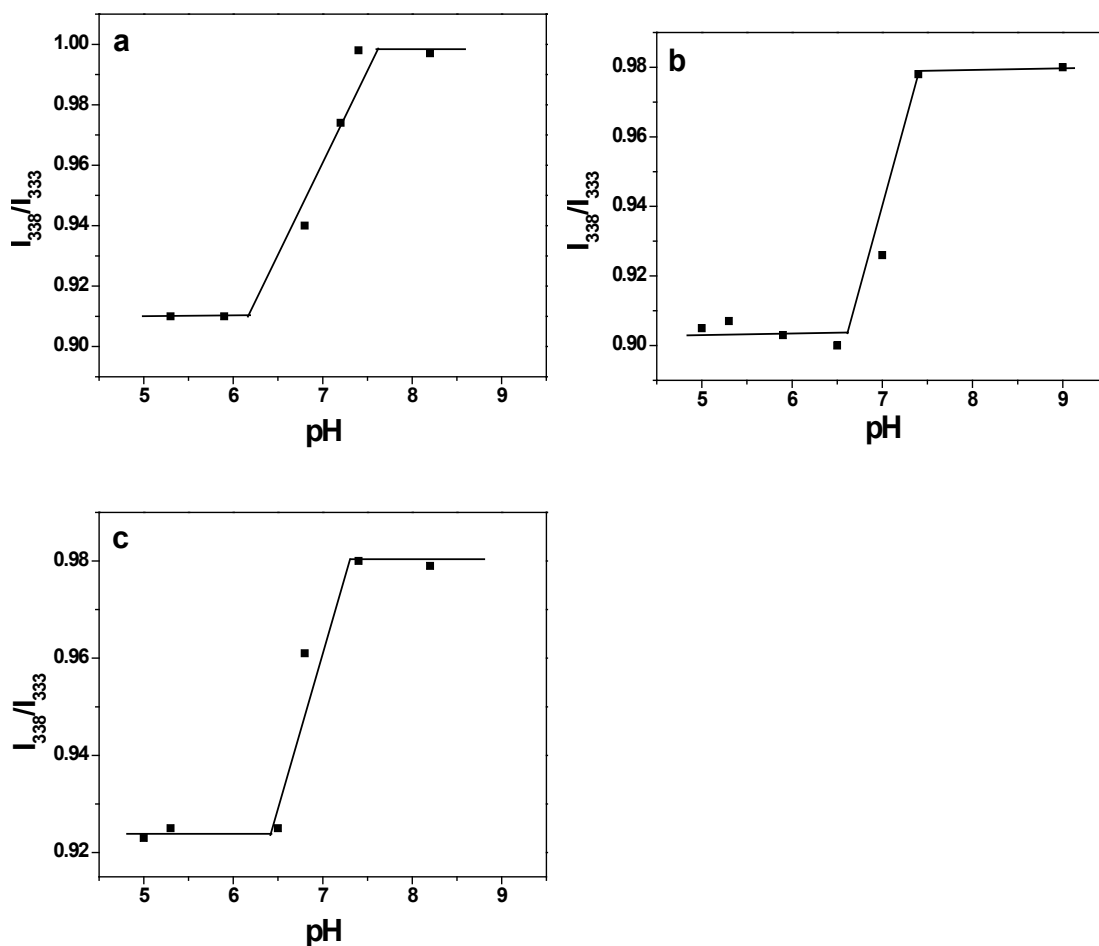


Figure S4. I_{338}/I_{333} ratio of pyrene vs pH value determined by fluorescence spectrometer in **P2** (a), **P3** (b) and **P4** (c) aqueous solution (10 mM PB).

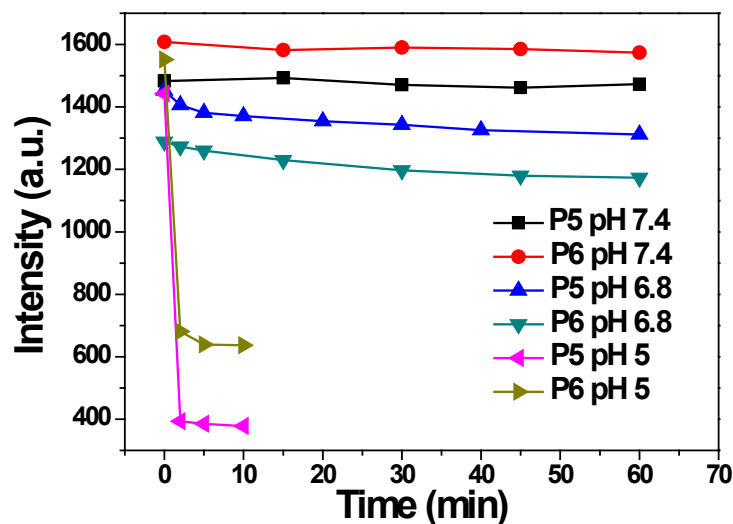


Figure S5. Incubation time-dependent change of the fluorescence intensity of Nile Red in **P5** and **P6** nanoparticle dispersions at different pHs. $\lambda_{\text{ex}} = 545 \text{ nm}$; 37°C ; polymer concentration: 1.0 mg/mL ; NR concentration: $1.0 \times 10^{-6} \text{ M}$.

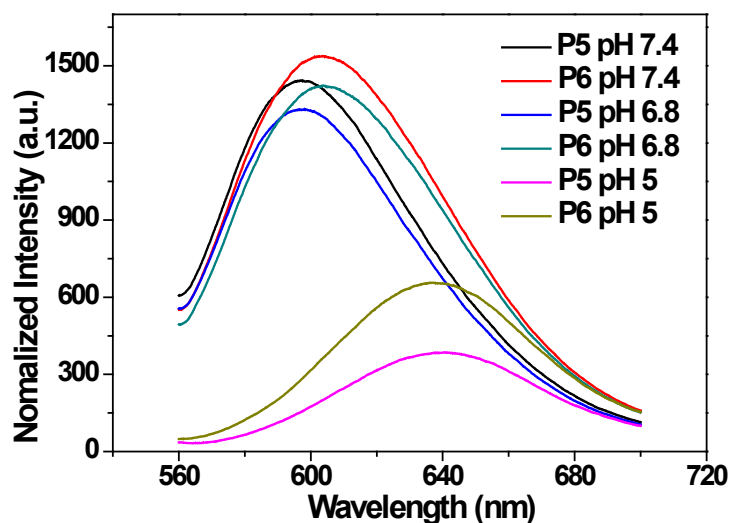


Figure S6. pH-dependent fluorescence spectra of NR in **P5** and **P6** nanoparticle dispersions at pH 7.4, 6.8 and 5.0. $\lambda_{\text{ex}} = 545 \text{ nm}$; 37°C ; polymer concentration: 1.0 mg/mL ; NR concentration: $1.0 \times 10^{-6} \text{ M}$.

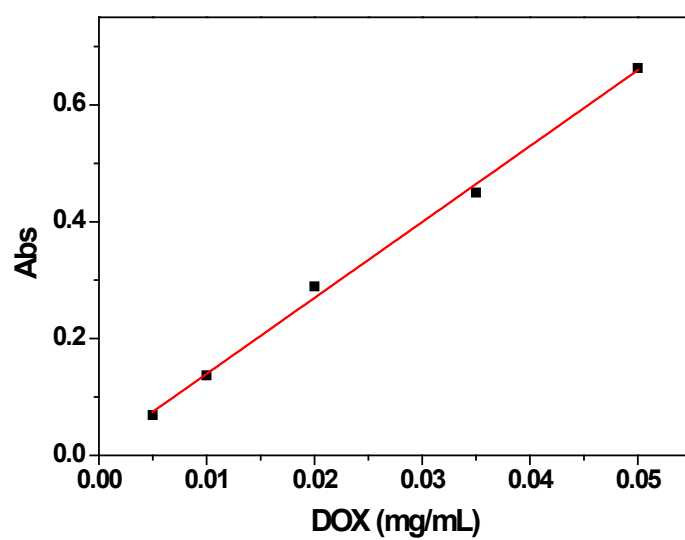


Figure S7. The calibration curve of DOX UV-Vis absorption spectra in acetate buffer (pH 5.0) with different concentrations. Buffer concentration: 50 mM.