Supporting Information

Acid and reduction dually cleavable amphiphilic comblike copolymer micelles for controlled drug delivery

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Table S1. Dependence of particle size and distribution of SACP3 aggregates (c = 0.50 mg/mL) on time upon pH and redox stimuli

run	pH	c_{DTT} (mM)	t (h)	D (nm)	PD	D_{peak} (nm)
1	7.4	0	0	77.7	0.073	84.8
2	7.4	0	360	79.5	0.116	90.8
3	5.0	10	2	103	0.163	115
4	5.0	10	8	170	0.131	174
5	5.0	10	16	378	0.468	103, 366
6	5.0	10	48	560	0.470	694
7	7.4	10	2	59.2	0.042	62.7
8	7.4	10	8	75.8	0.070	82.0
9	7.4	10	16	79.9	0.137	86.4
10	7.4	10	48	76.6	0.049	81.7
11	5.0	0	2	122	0.245	143
12	5.0	0	8	373	0.472	76.7, 364
13	5.0	0	16	464	0.337	46.6, 680
14	5.0	0	48	172	0.550	232

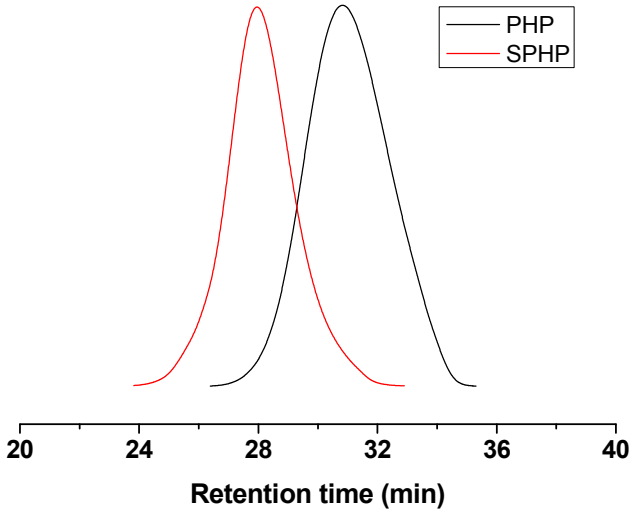

Fig. S1 GPC traces of poly(HEMA-*co*-PEGMEMA) (PHP, $M_{n,GPC}$ = 6580, PDI = 1.12) and disulfide-linked PHP (SPHP, $M_{n,GPC}$ = 11800, PDI = 1.11).

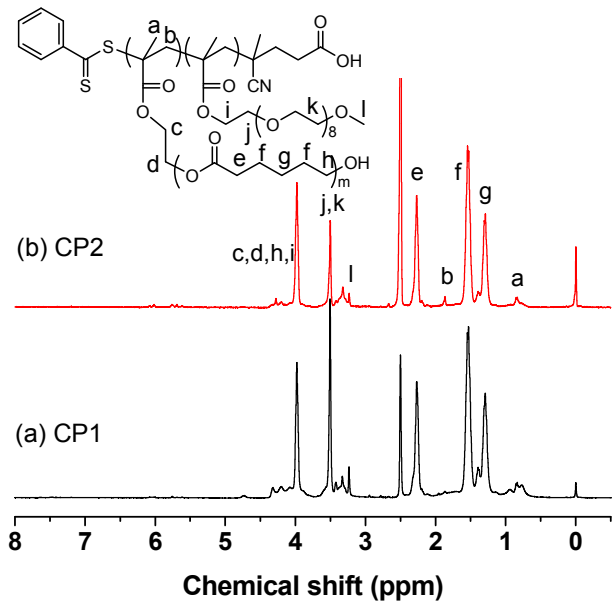

Fig. S2 ^{1}H NMR spectra of normal comblike poly(PEG-*co*-PCL) samples.

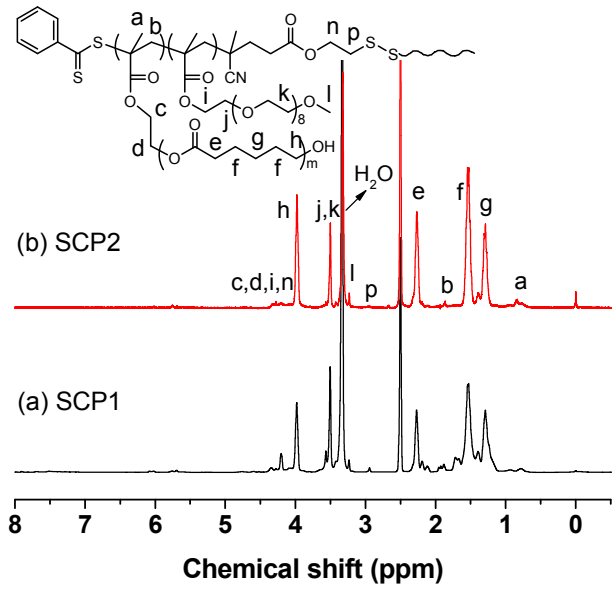

Fig. S3 ^{1}H NMR spectra of disulfide-linked comblike poly(PEG-*co*-PCL) samples.

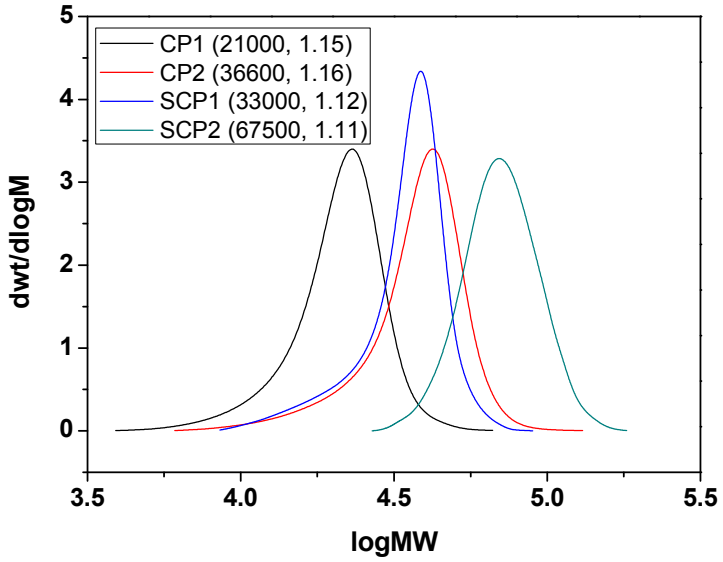

Fig. S4 GPC traces of comblike poly(PEG-*co*-PCL) (CP1 and CP2) and disulfide-linked poly(PEG-*co*-PCL) (SCP1 and SCP2).

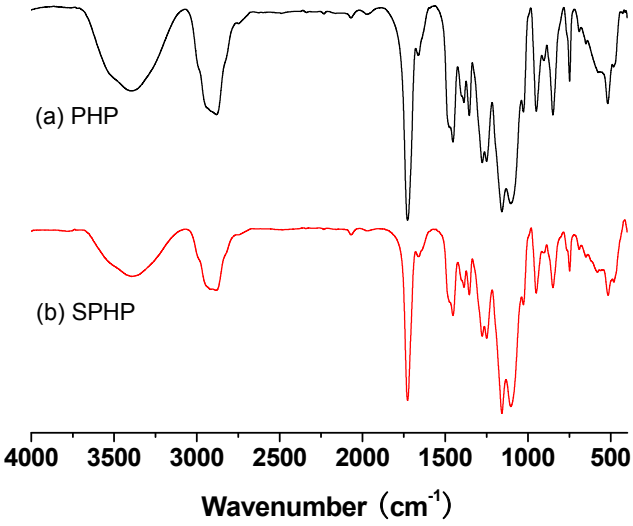

Fig. S5 IR spectra of PHP and SPHP.

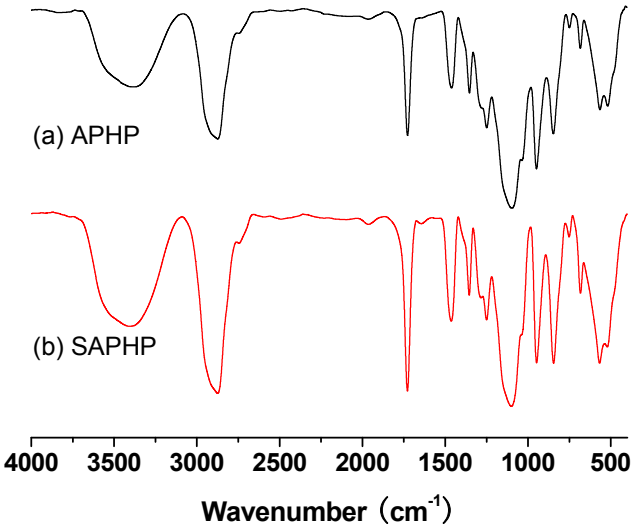

Fig. S6 IR spectra of PHP (a) and SPHP (b) grafted with MVPEG.

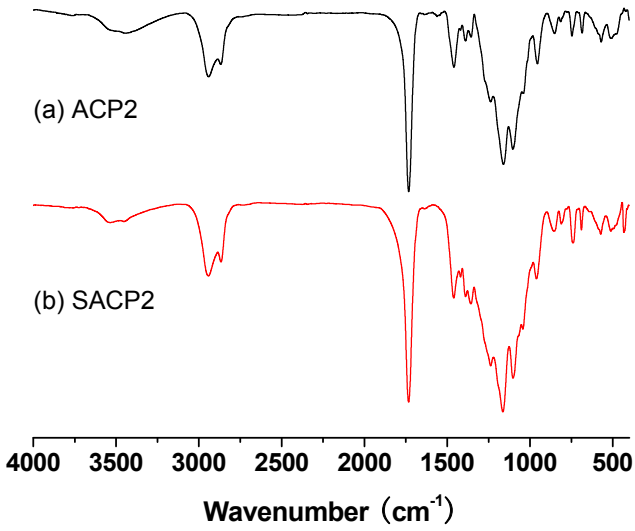

Fig. S7 IR spectra of ACP2 (a) and SACP2 (b) with PEG and PCL pendent chains.

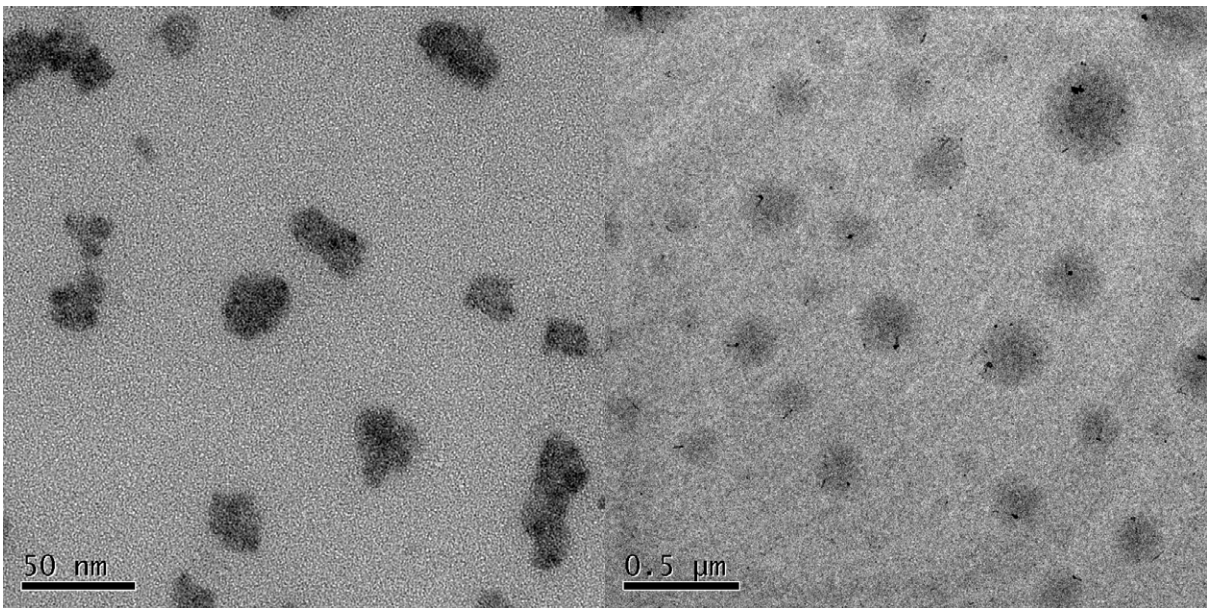

Fig. S8 Typical TEM images of copolymer micelles formed by ACP2 (left) and large compound micelles formed by ACP3 (right) in aqueous solution (c = 0.50 mg/mL). The formation of large compound micelles is a result of increased PCL content in the copolymer.

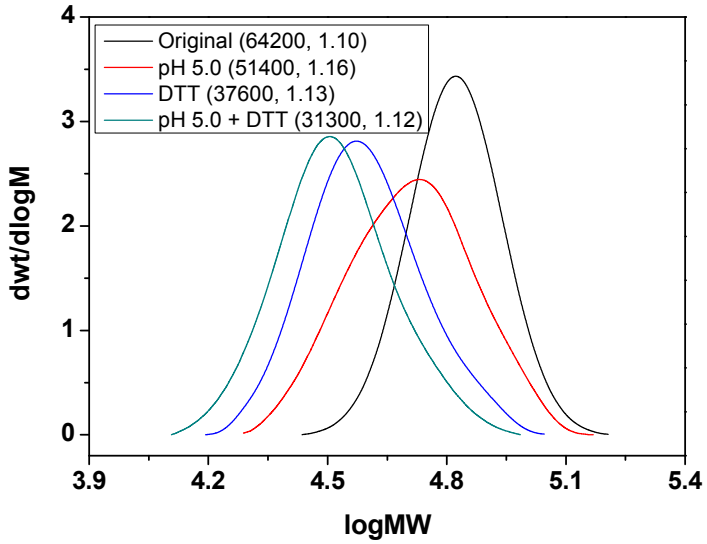

Fig. S9 GPC traces of SACP3 before and after treatment with different stimuli (pH 5.0, 10 mM DTT, or pH 5.0 with 10 mM DTT). The copolymer aggregates (c = 0.50 mg/mL) were first stood in PBS solution (50 mM) at 37 ^{o}C with different stimuli for 3 days, and then the degraded copolymers were isolated by freeze drying and precipitation and subjected to GPC-MALLS analysis.

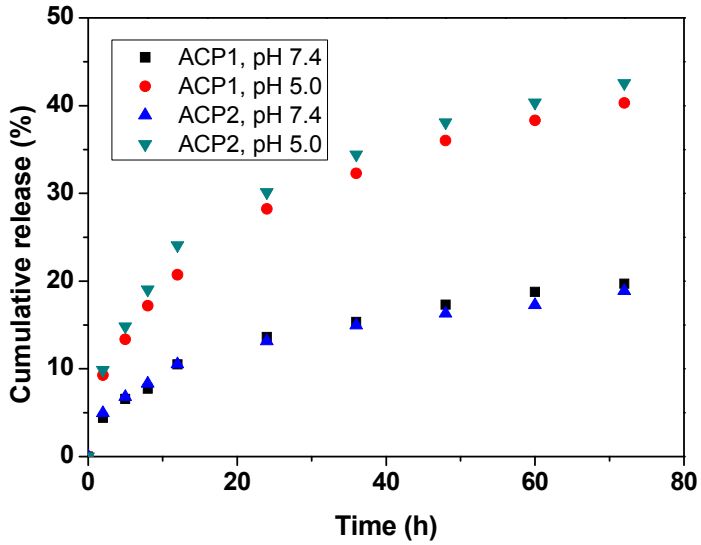

Fig. S10 In vitro drug release profiles of DOX-loaded aggregates (c = 0.50 mg/mL) formed by ACP1 and ACP2 in PBS solution (pH 7.4 or 5.0, 50 mM) at 37 ^{o}C. The experimental errors were within ±8%.

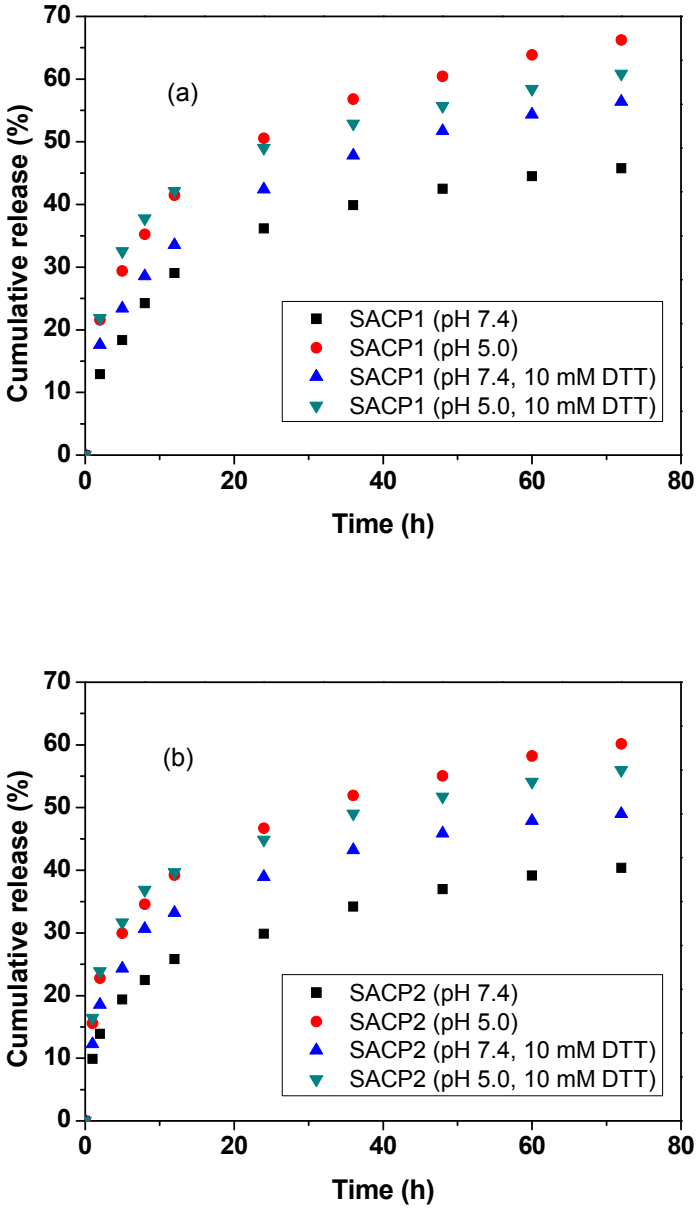

Fig. S11 In vitro drug release profiles of DOX-loaded aggregates (c = 0.50 mg/mL) formed by SACP1 (a) and SACP2 (b) in PBS solution (pH 7.4 or 5.0, 50 mM) with or without 10 mM DTT at 37 ^{o}C. The experimental errors were within ±10%.