

Supporting Information

Multi-responsive graft copolymer micelles comprising acetal and disulfide linkages for stimuli-triggered drug delivery

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Table S1. Dependence of apparent drug-release rate (K), cumulative release (CR) and increment of cumulative release (ICR) at 48 h on external stimuli during in vitro DOX releases from G3 aggregates or G3/ β -CD coaggregates

Aggregates	T (°C)	pH	DTT	K (h ⁻¹)	CR (%)	ICR (%)
G3	25	7.4	none	0.063	36.1	0
G3	25	5.3	yes	0.174	59.9	65.9
G3	37	7.4	none	0.158	48.3	33.8
G3	37	7.4	yes	0.238	67.4	86.7
G3	37	5.3	none	0.278	63.0	74.5
G3	37	5.3	yes	0.403	77.1	114
G3/ β -CD	25	7.4	none	0.139	45.4	0
G3/ β -CD	25	5.3	yes	0.178	61.8	36.1
G3/ β -CD	37	7.4	none	0.236	52.4	15.4
G3/ β -CD	37	7.4	yes	0.325	64.4	41.9
G3/ β -CD	37	5.3	none	0.293	67.2	48.0
G3/ β -CD	37	5.3	yes	0.458	78.6	73.1

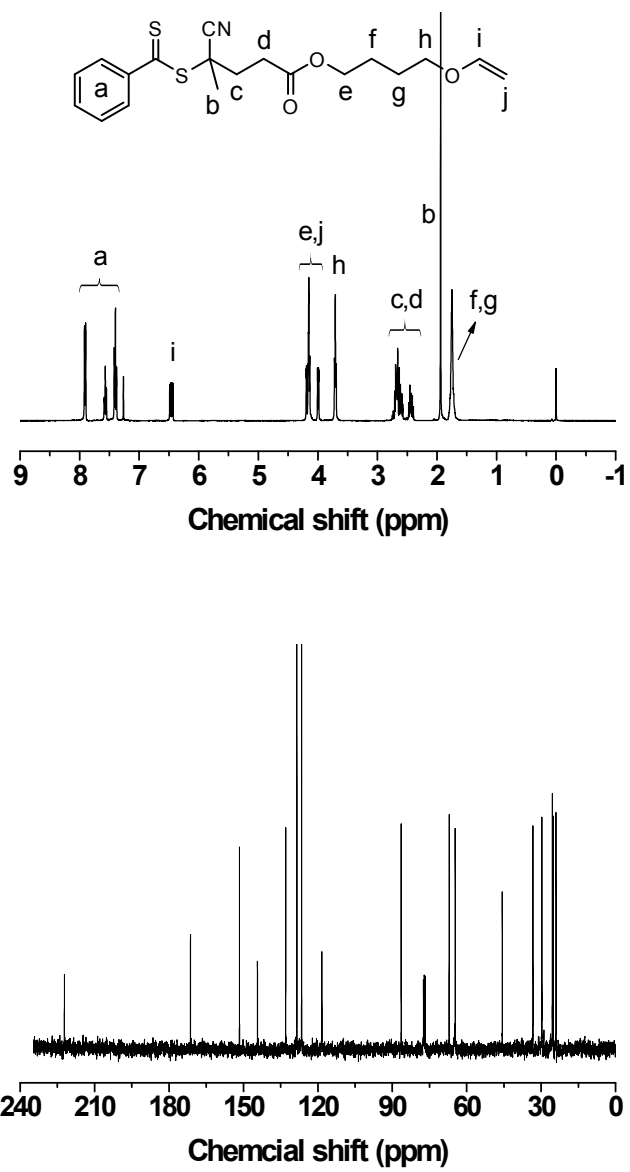


Fig. S1 ^1H (top) and ^{13}C (bottom) NMR spectra of VCP.

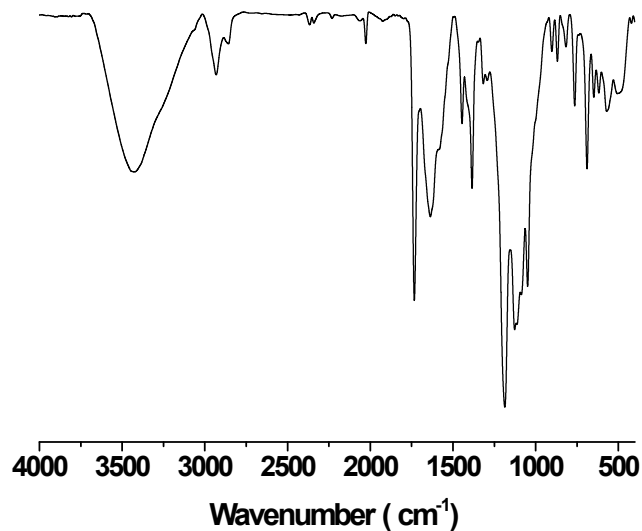


Fig. S2 IR spectrum of 4-(vinylloxy)butyl 4-cyano-4-(phenylcarbonothioylthio)pentanoate (VCP).

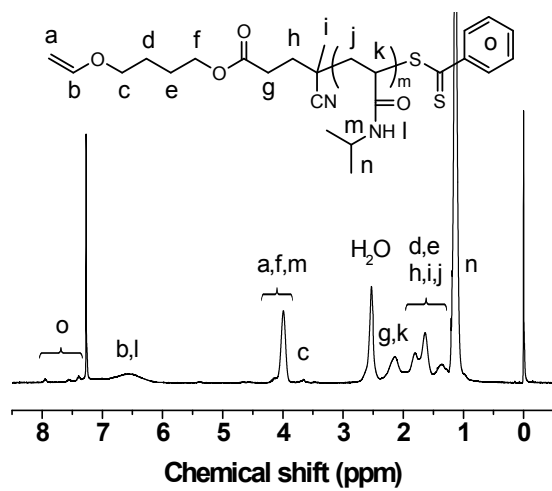


Fig. S3 ^1H NMR spectrum of vinylloxy-terminated PNIPAM.

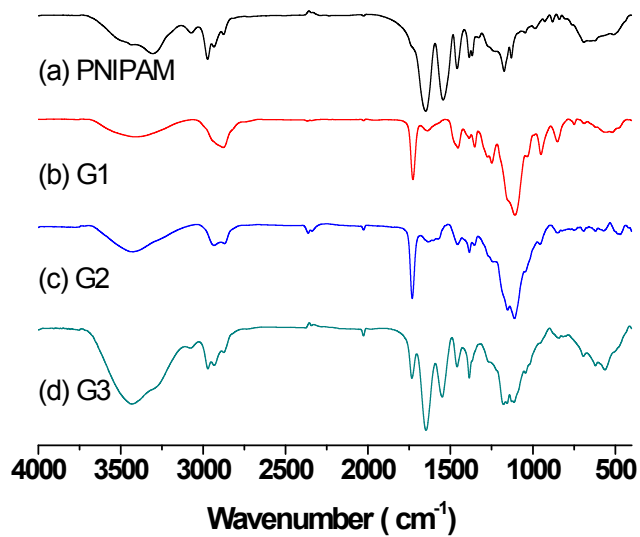


Fig. S4 IR spectra of PNIPAM (a), poly(HEMA-*co*-PEGMEMA) (G1, b), poly(PEG-*co*-PCL) (G2, c), and poly(PEG-*co*-PCL)-*graft*-PNIPAM (G3, d).

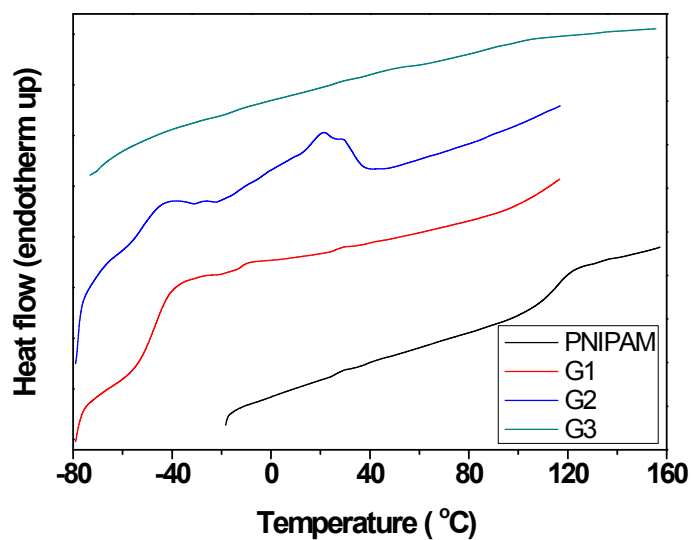


Fig. S5 DSC traces of various polymers.

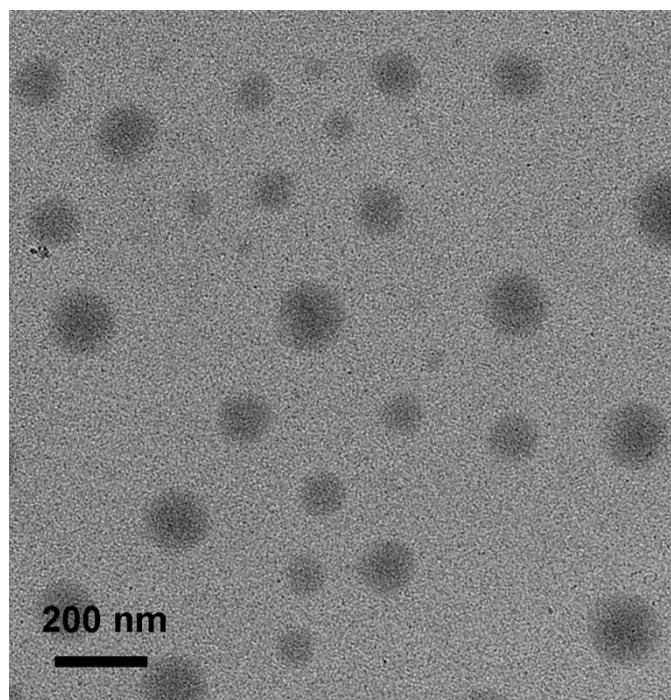


Fig. S6 TEM image of G3/ β -CD coaggregates ($c_{\text{polymer}} = 0.50 \text{ mg mL}^{-1}$, $c_{\beta\text{-CD}} = 1.0 \text{ mM}$) formed at 37 °C.

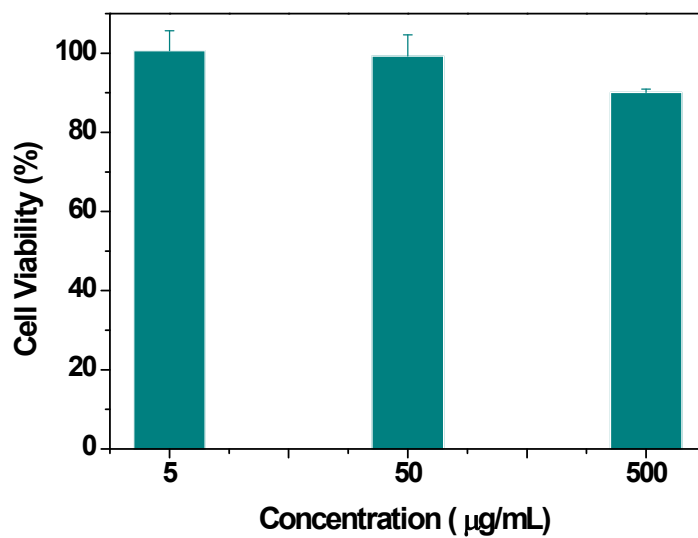


Fig. S7 Cell viability of 4T1 cells incubated with β -CD aqueous solution at various concentrations at 37 °C for 24 h. Error bars denote standard deviations from three parallel trials.

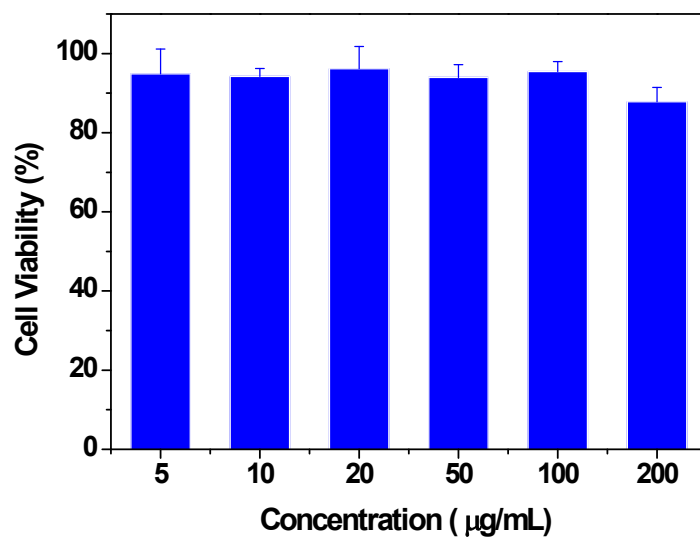


Fig. S8 Cell viability of 4T1 cells incubated with G3 aggregates at various concentrations at 37 °C for 24 h. Error bars denote standard deviations from three parallel trials.