

Supporting Information

Toward a Molecular Understanding of the Mechanism of Cryopreservation by Polyampholytes: Cell Membrane Interactions and Hydrophobicity

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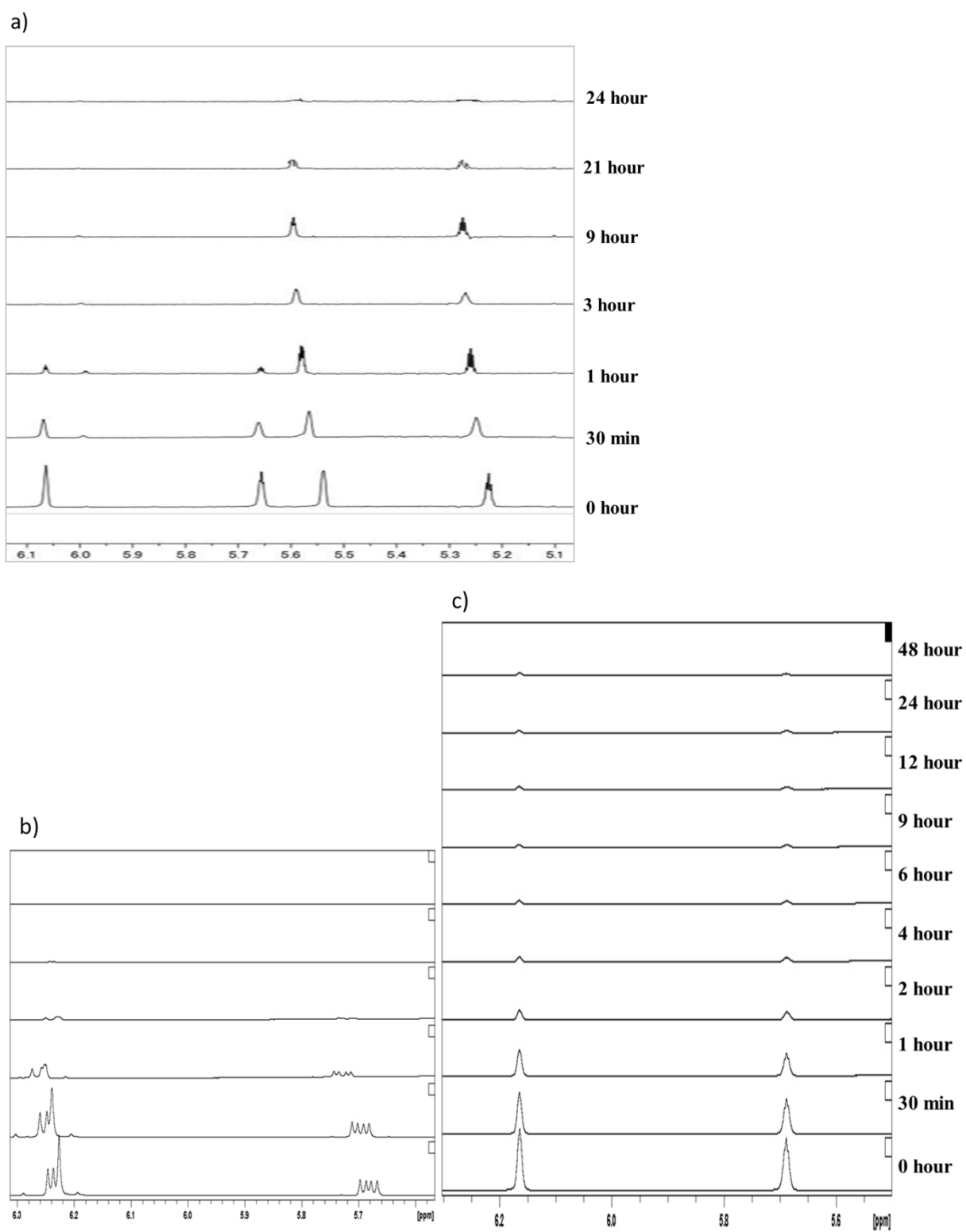
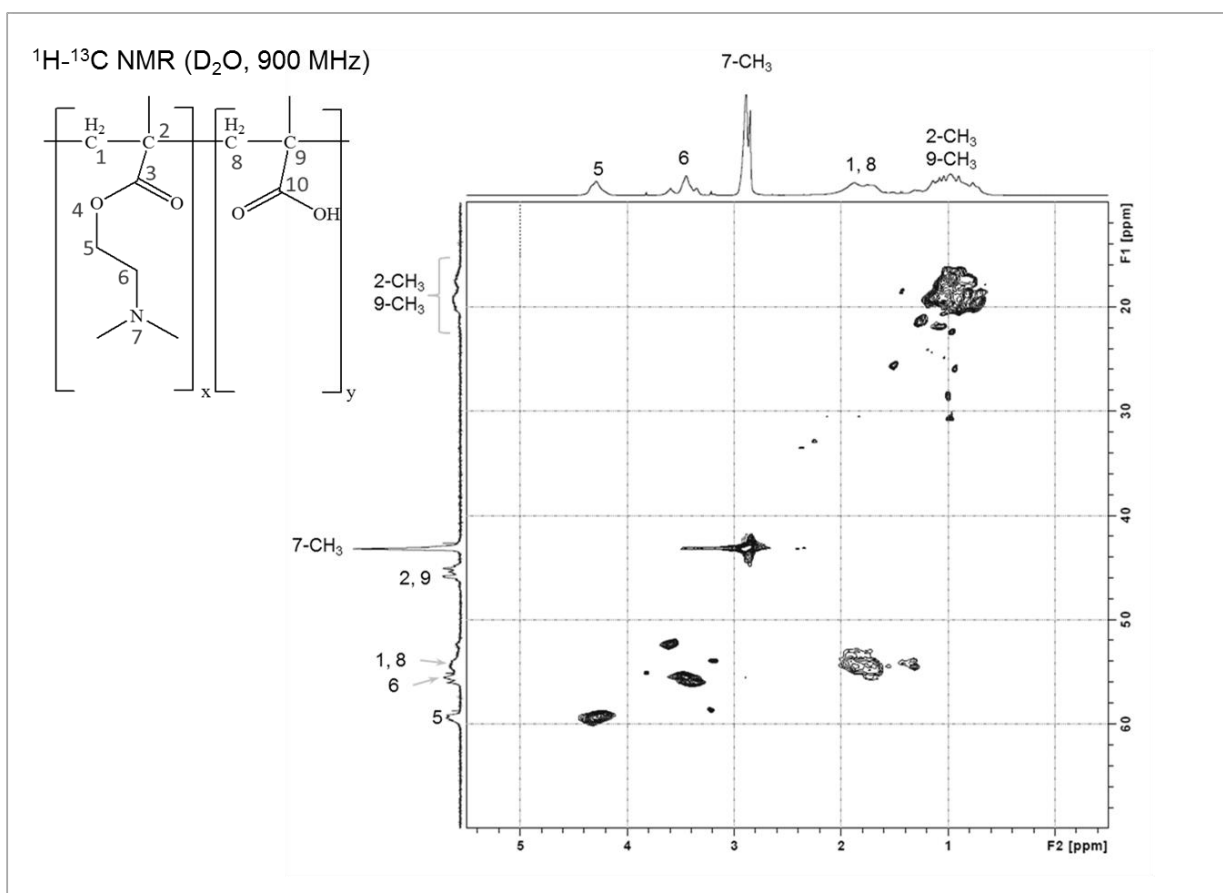


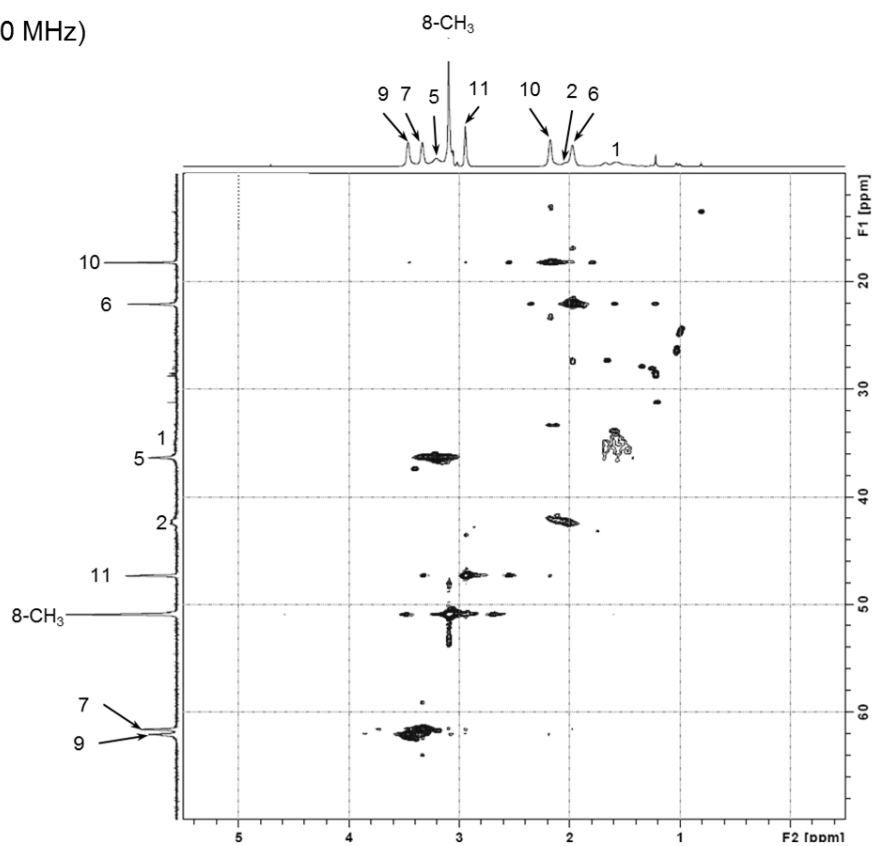
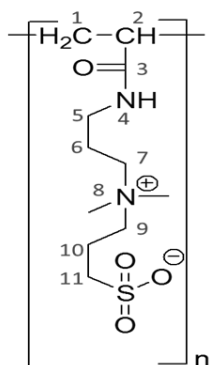
Figure S1. Time-dependent ^1H -NMR spectra of (a) poly-(MAA-DMAEMA), (b) poly-SPB and (c) poly-CMB in D_2O

(a)



(b)

^1H - ^{13}C NMR (D_2O , 900 MHz)



(c)

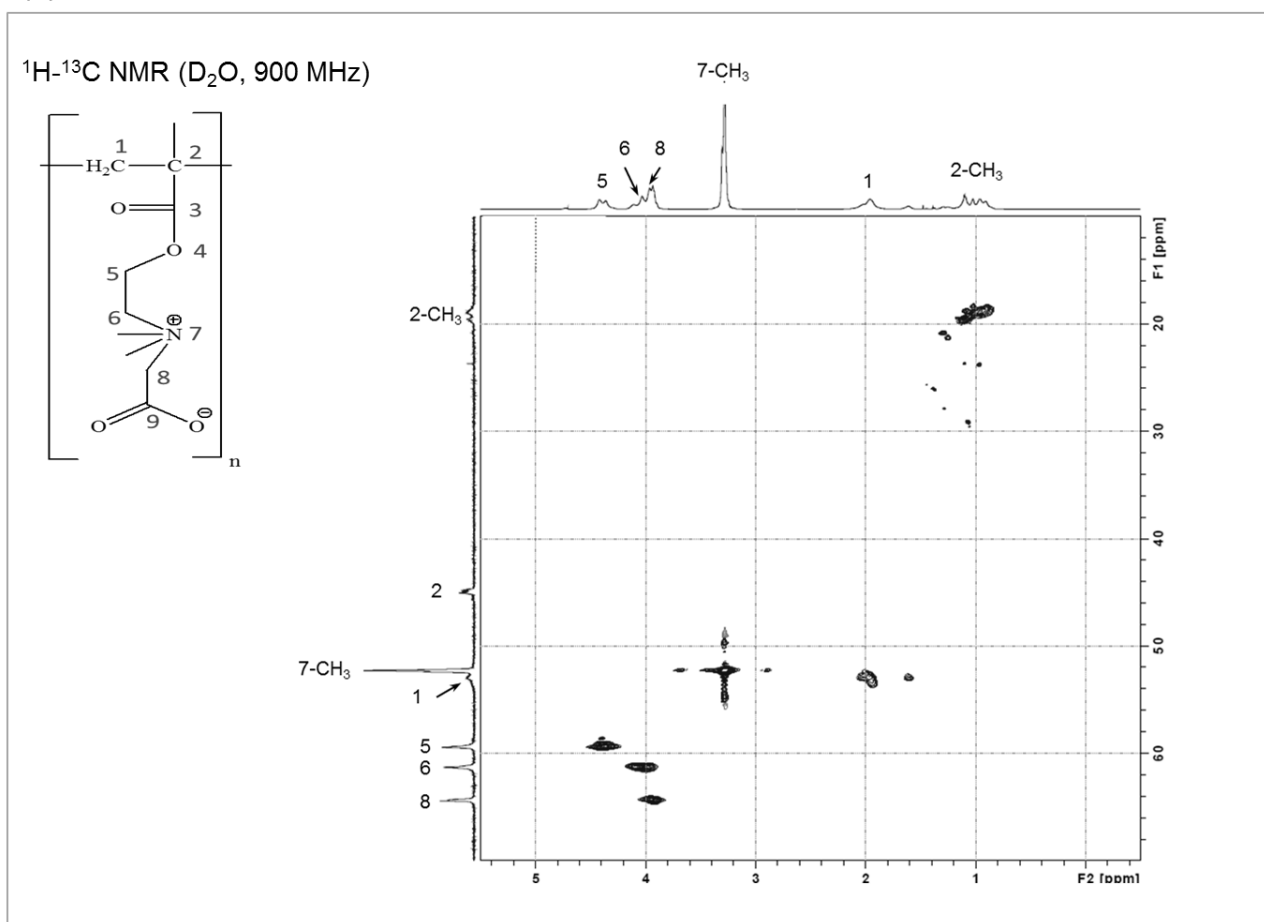


Figure S2. NMR signal assignment of (a) poly-(MAA-DMAEMA), (b) poly-SPB, or (c) poly-CMB in D_2O .

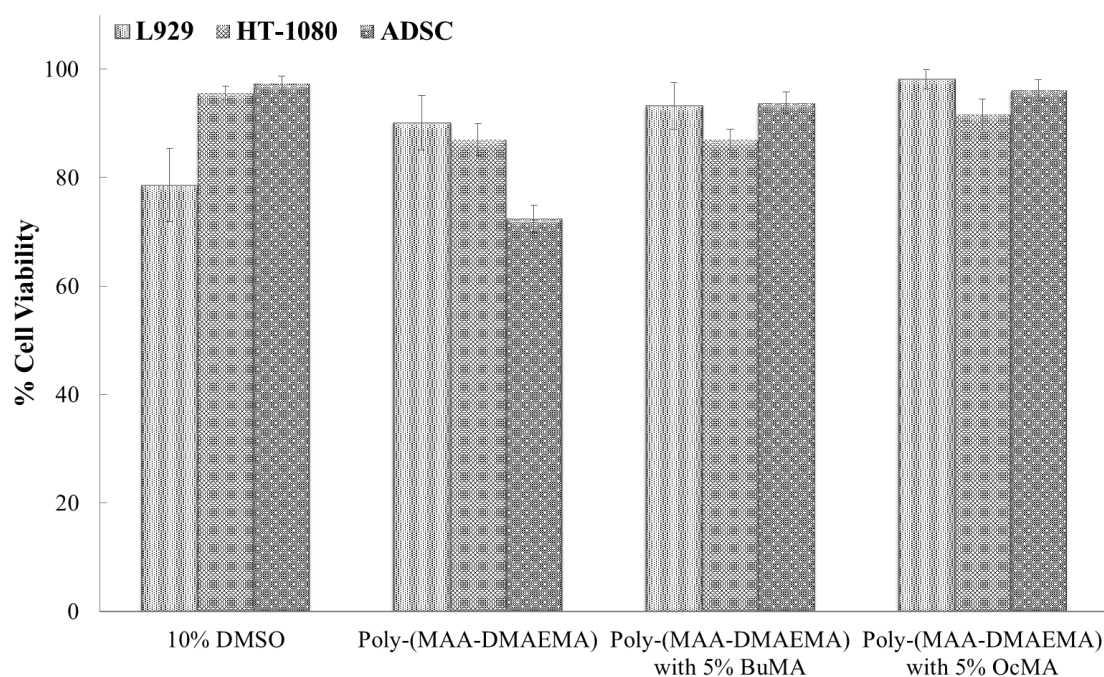


Figure S3. Cryoprotective properties of poly-(MAA-DMAEMA) Different cell lines were cryopreserved with the MAA-DMAEMA copolymer at 15% polymer concentration. Data are expressed as the mean \pm SD for 3 independent experiments (5 samples each).

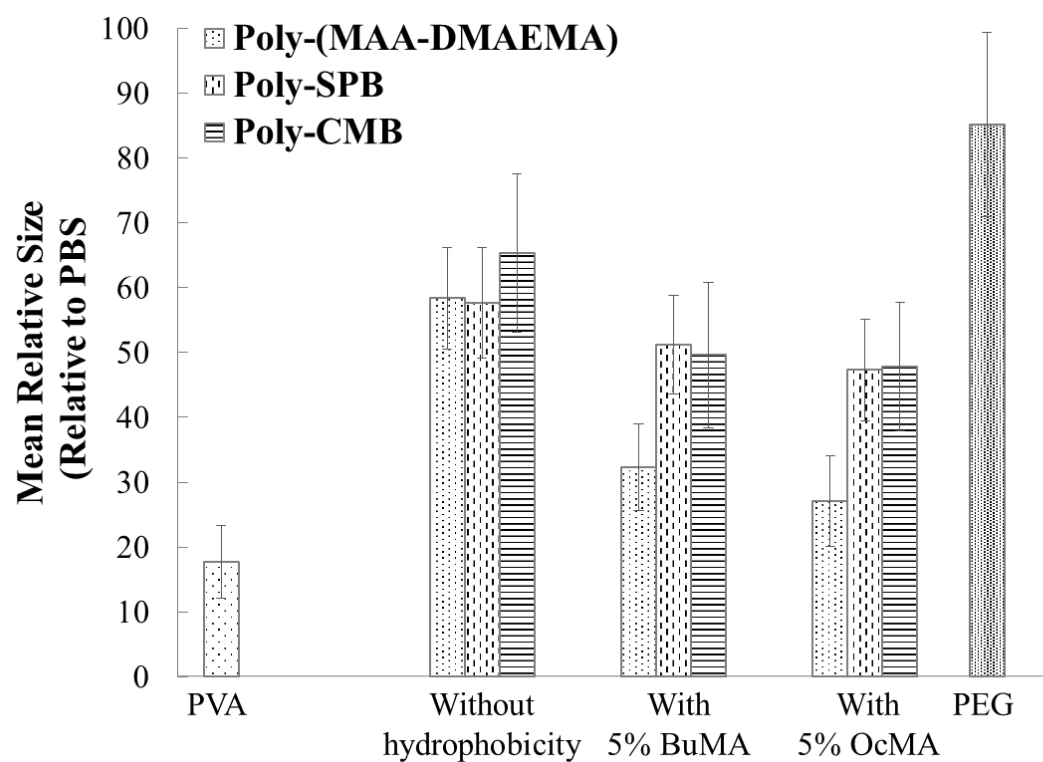


Figure S4. IRI activities of poly-(MAA-DMAEMA), poly-SPB, poly-CMB and the effect of hydrophobicity at a 2% polymer concentration. The IRI activity has been compared with PVA (positive control) and PEG (negative control). The errors bars indicate the SD of the mean.

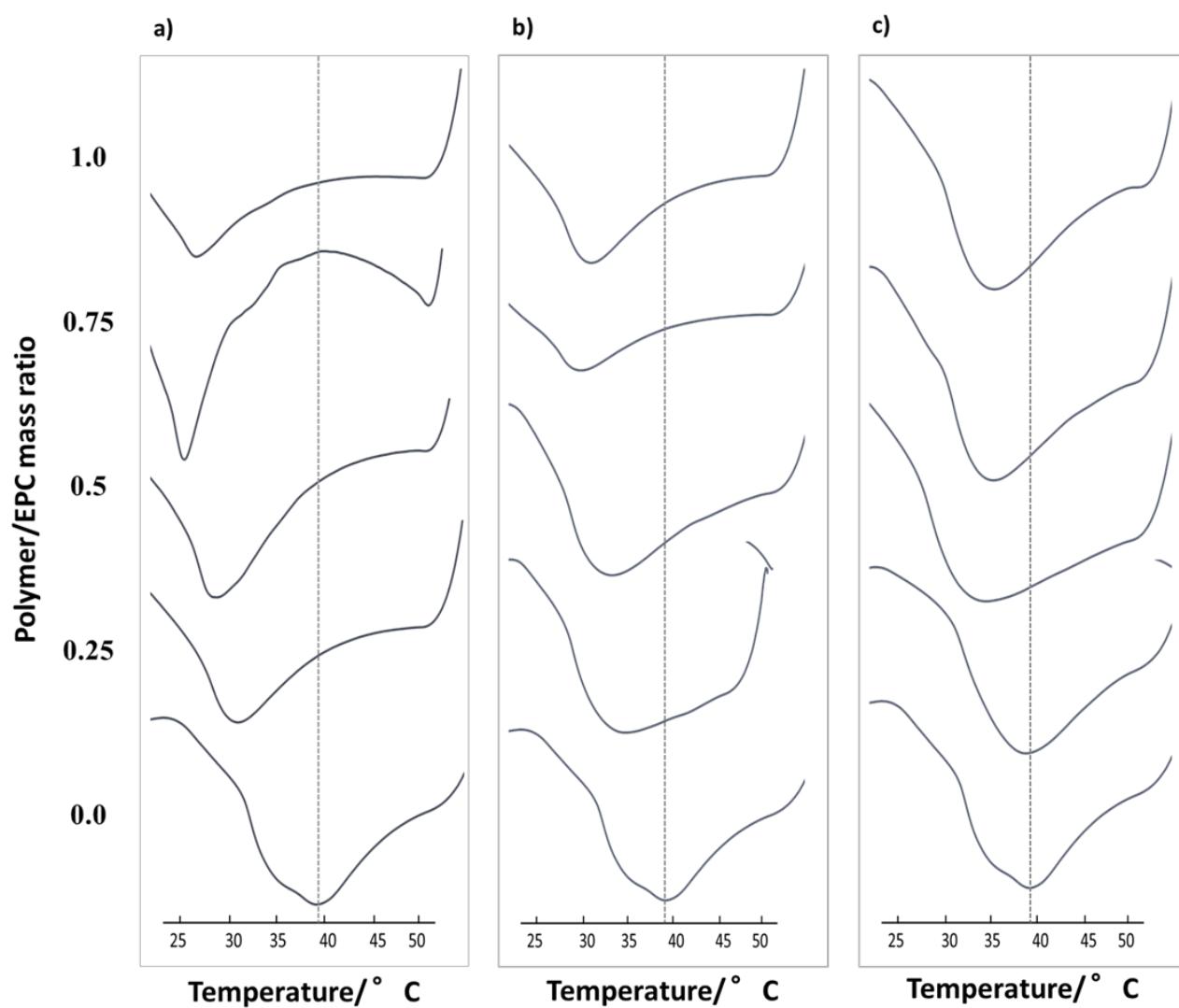


Figure S5. DSC heating thermograms of EPC liposomes in the presence of different amounts of (a) poly-(MAA-DMAEMA), (b) poly-SPB, or (c) poly-CMB. The resulting polymer/EPC mass ratios are indicated to the right of each trace.

Table S1. Viscosity of various polymers, with and without their hydrophobic derivatives

at a 2.5% polymer concentration

Polymer	Viscosity (mPa • s)		
	Without hydrophobic part	BuMA	OcMA
Poly-(MAA-DMAEMA)	1.25 ± 0.02	1.30 ± 0.03	1.41 ± 0.02
Poly-SPB	0.999 ± 0.04	1.024 ± 0.03	1.032 ± 0.06
Poly-CMB	1.076 ± 0.1	1.148 ± 0.15	1.173 ± 0.18