

Supplementary Information

Rational Design of Hydrogen Bonds for Driving Thermo-responsive Phase Transition and Assembly Behavior of Block Copolymer in Water

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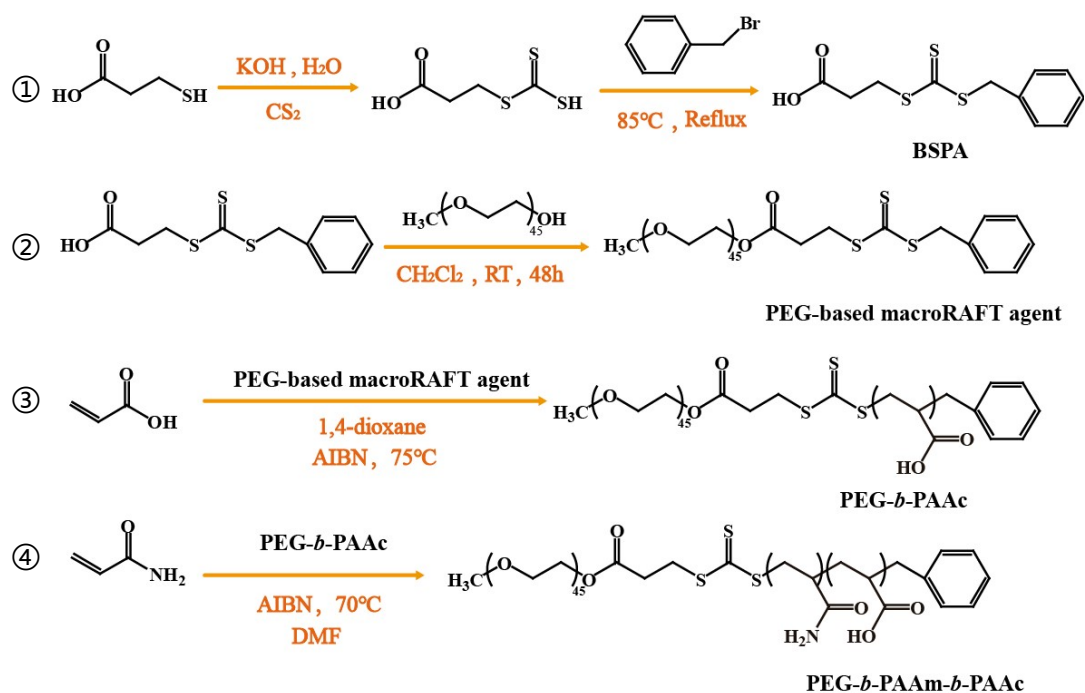
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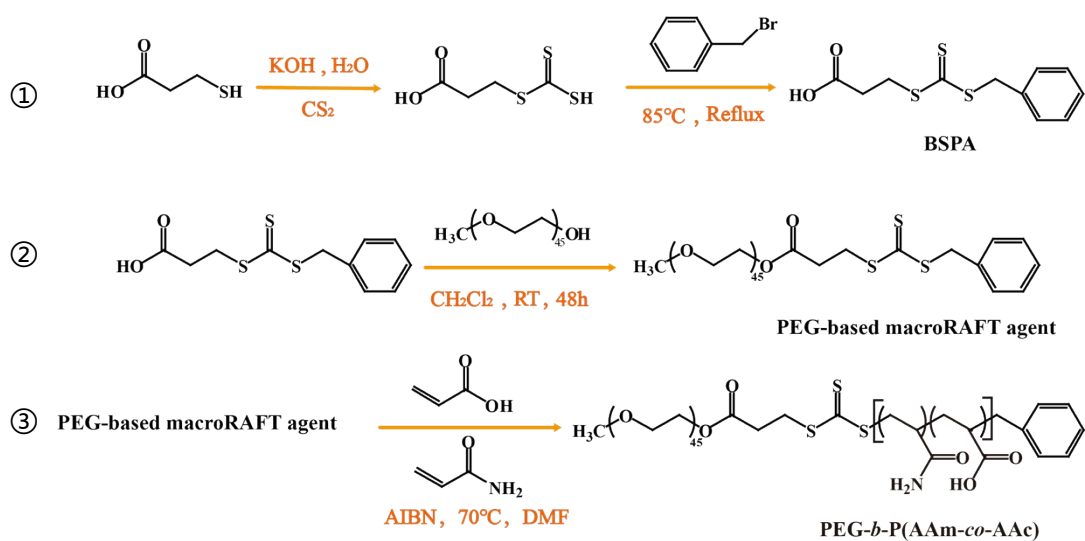
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Scheme S1 Schematic illustration of the preparation of PEG-*b*-PAAm-*b*-PAAc block copolymer.



Scheme S2 Schematic illustration of the preparation of PEG-*b*-P(AAm-*co*-AAc) random copolymer.

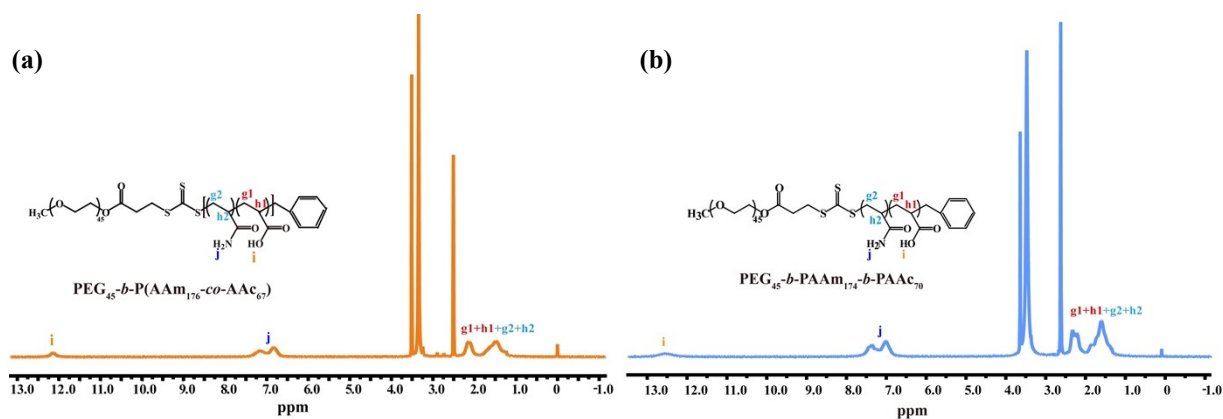


Fig. S1 ^1H NMR spectra of $\text{PEG}_{45}\text{-}b\text{-P}(\text{AAm}_{176}\text{-}co\text{-AAc}_{67})$ random copolymer and $\text{PEG}_{45}\text{-}b\text{-PAAm}_{174}\text{-}b\text{-PAAC}_{70}$ block copolymer.

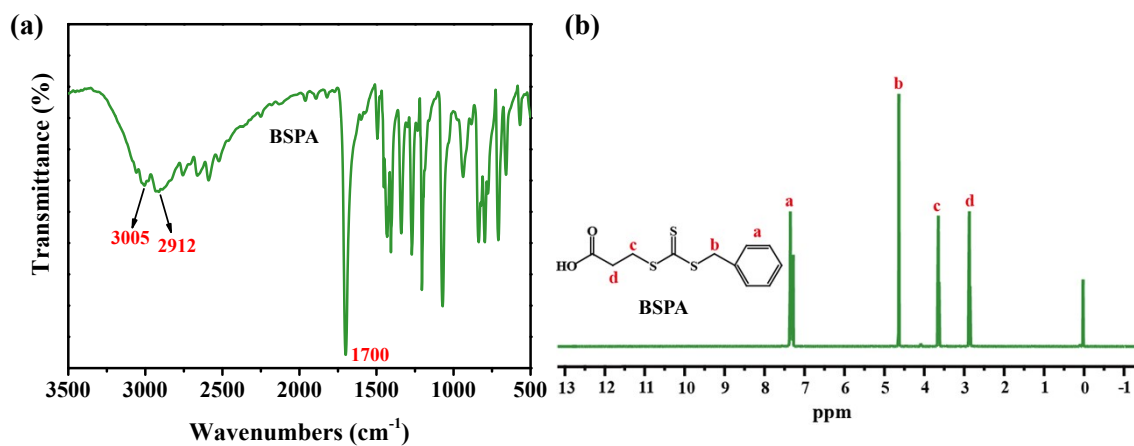


Fig. S2 (a) FT-IR spectra of BSPA; (b) ^1H NMR spectra of BSPA.

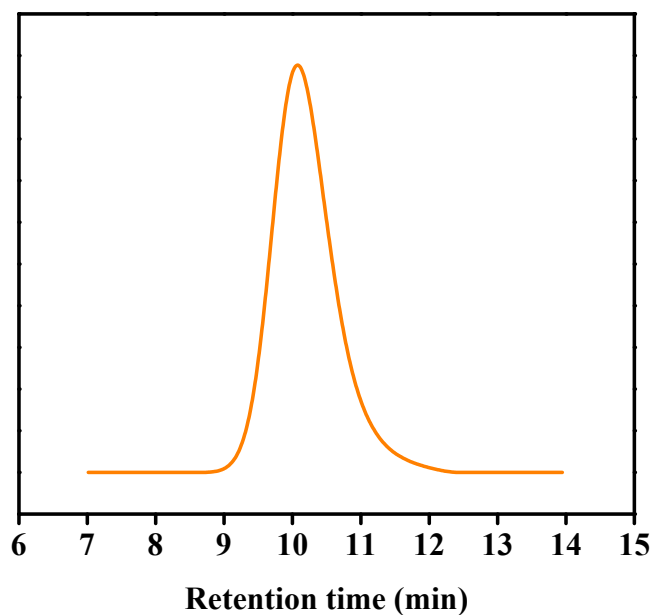


Fig. S3 Size exclusion chromatography (SEC) spectra of $\text{PEG}_{45}\text{-}b\text{-PAAm}_{178}\text{-}b\text{-PAAC}_{134}$.

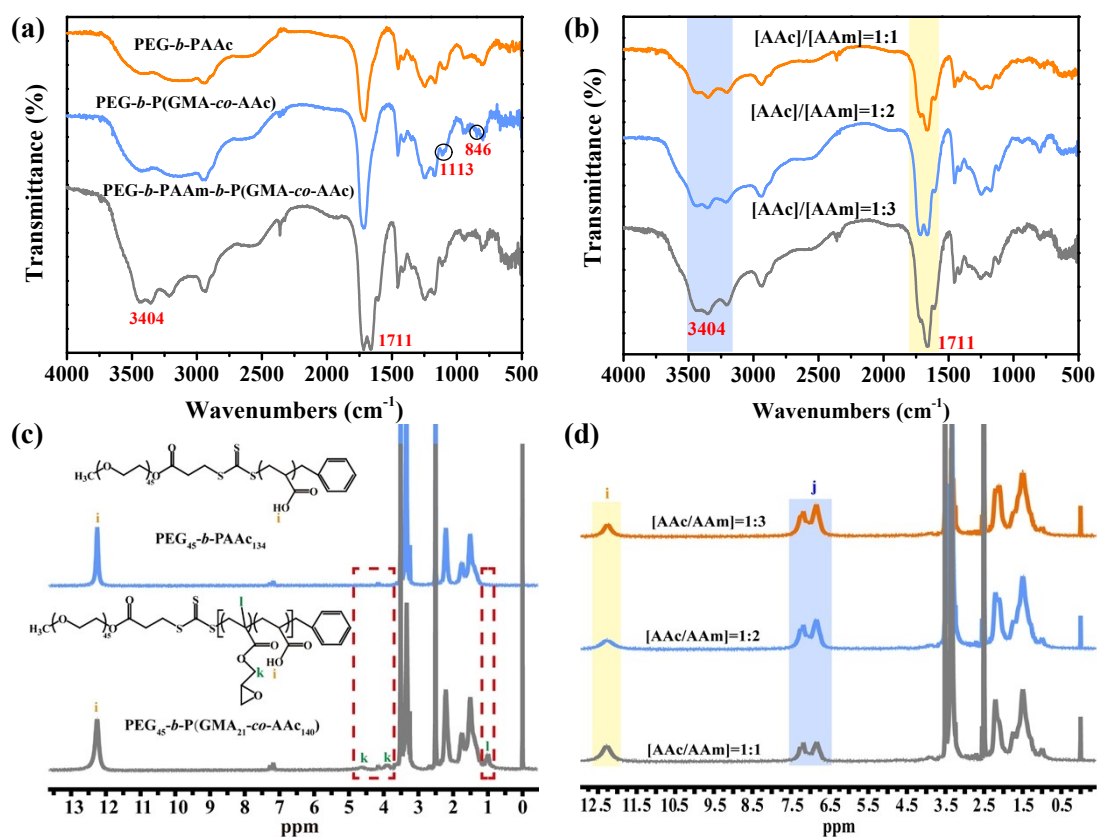


Fig. S4 (a) FTIR spectra of PEG-*b*-PAAc, PEG-*b*-P(AAc-*co*-GMA), PEG-*b*-PAAm-*b*-P(AAc-*co*-GMA); (b) FTIR spectra of PEG-*b*-PAAm-*b*-P(AAc-*co*-GMA) with different feed ratios of AAc and AAm (1:1, 1:2 and 1:3); (c) ¹H NMR spectra of PEG₄₅-PAAc₁₃₄, PEG₄₅-*b*-P(AAc₁₄₀-*co*-GMA₂₁); (d) ¹H NMR spectra of PEG-*b*-PAAm-*b*-P(AAc-*co*-GMA) with different feed ratios of AAc and AAm (1:1, 1:2 and 1:3).

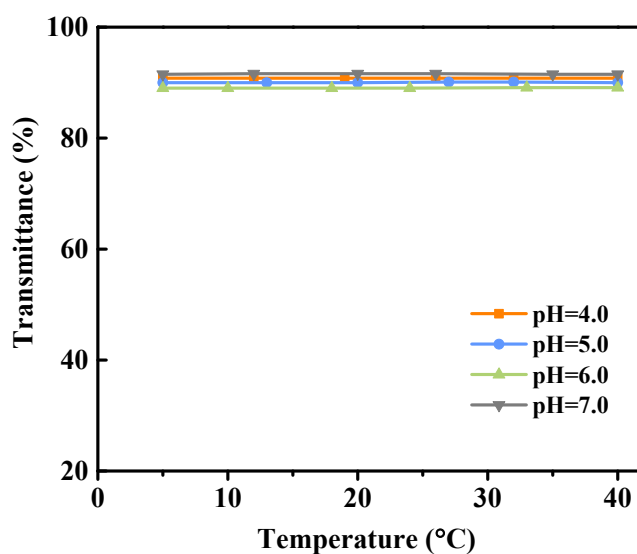


Fig. S5 Temperature-dependent transmittance of 5 mg/ml PEG₄₅-*b*-PAAm₁₇₈-*b*-PAAc₁₃₄ aqueous solutions at 500 nm at different pH values.

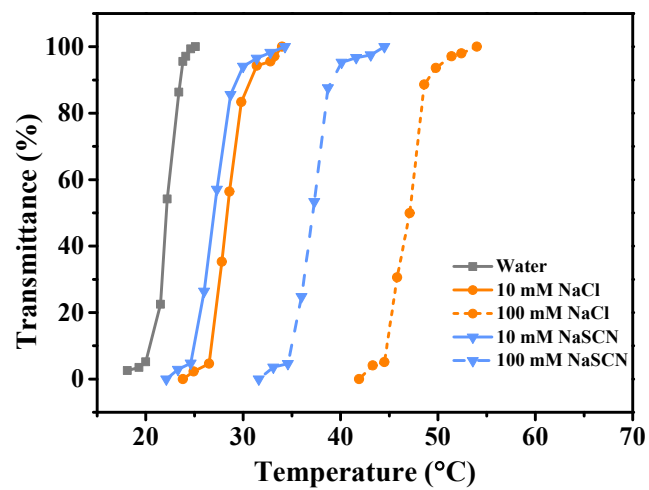


Fig. S6 Salt-dependent UCST behaviour of PEG₄₅-*b*-PAAm₁₇₆-*b*-P(AAc₁₄₀-*co*-GMA₂₁) block copolymer measured at 500 nm.