

## **Supporting information**

### **Thermo-responsive polyion complex of polysulfobetaine and a cationic surfactant in water**

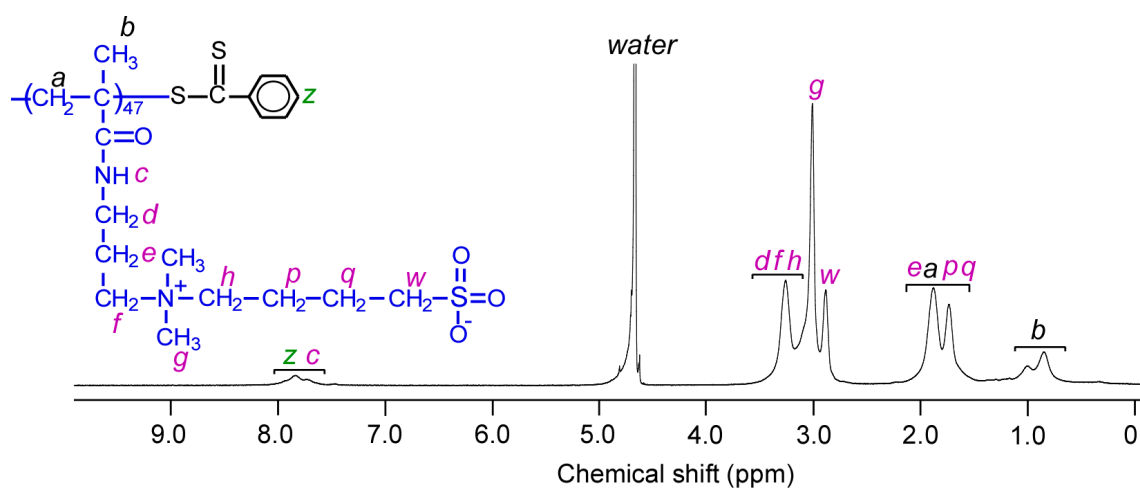
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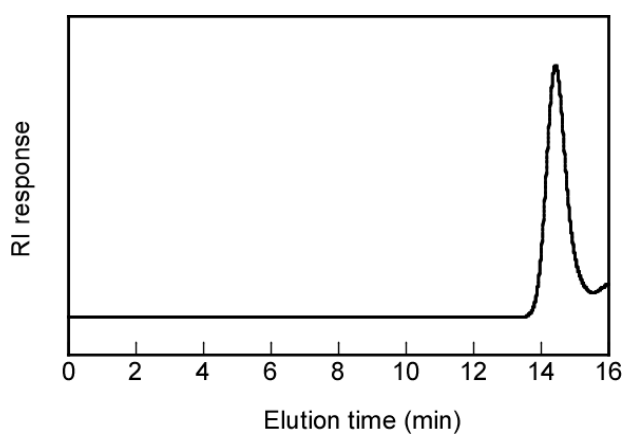
\*Corresponding author

Shin-ichi Yusa

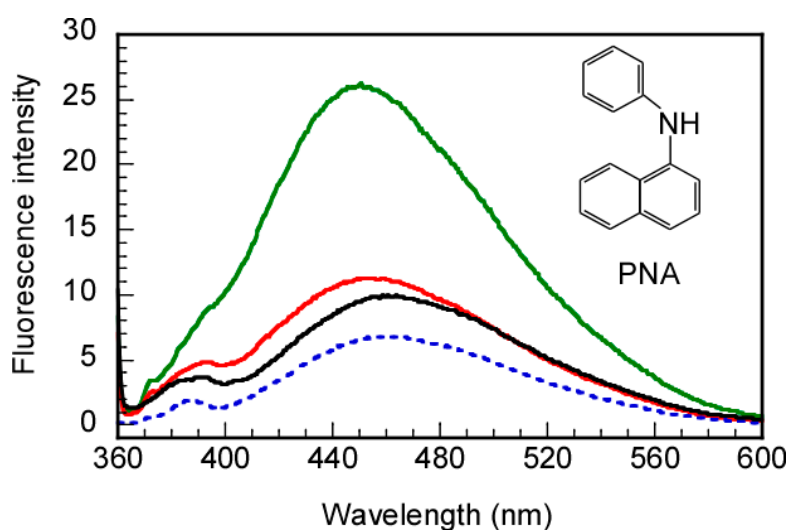
yusa@eng.u-hyogo.ac.jp



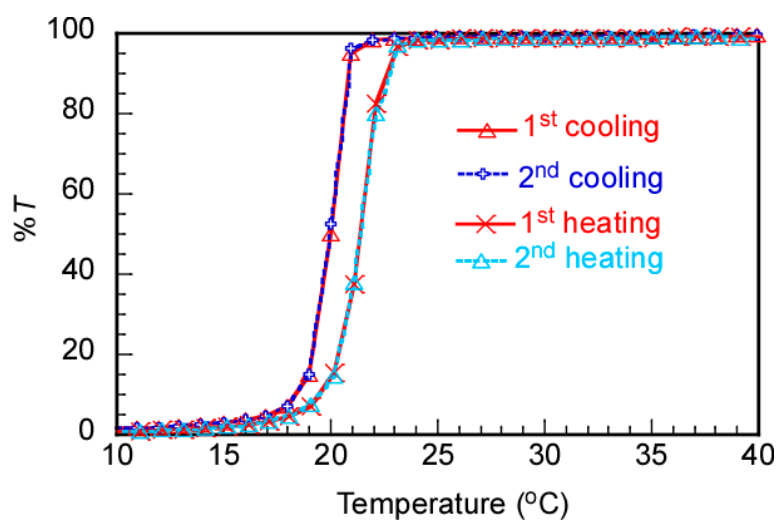
**Figure S1.**  $^1\text{H}$  NMR spectrum of PSBP in  $\text{D}_2\text{O}$  at  $25^\circ\text{C}$ .



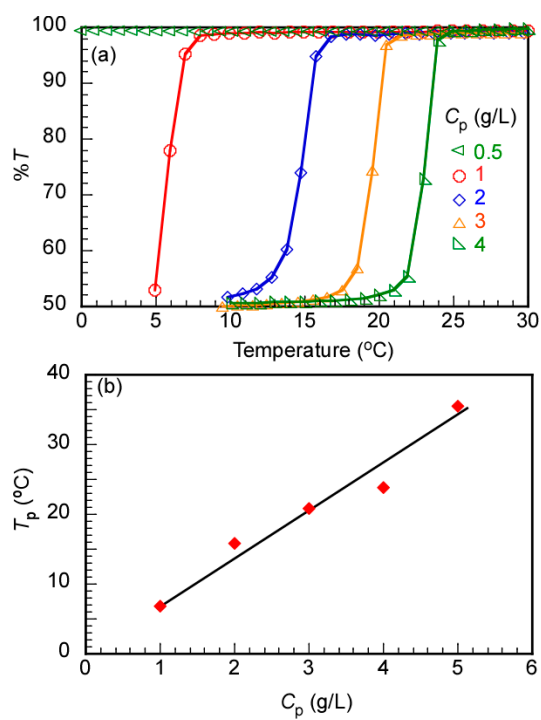
**Figure S2.** Gel-permeation chromatography (GPC) elution curve of PSBP obtained using a refractive index (RI) detector working at  $40^\circ\text{C}$  and phosphate buffer as an eluent.



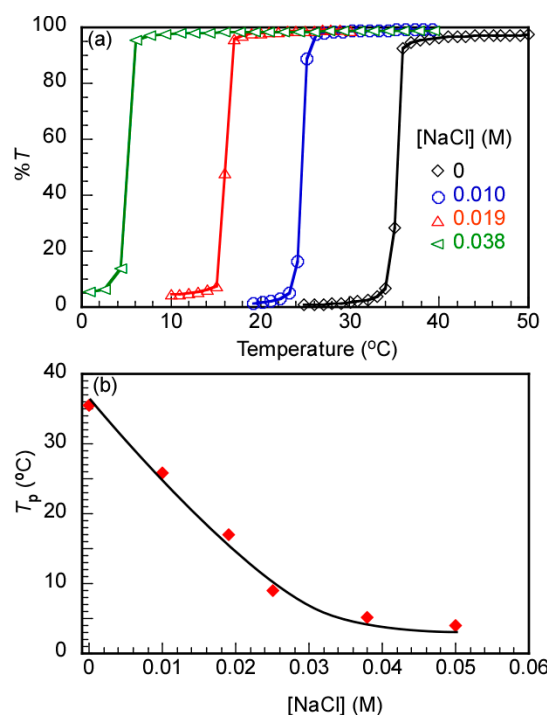
**Figure S3.** Fluorescence spectra of PNA only (---) and PNA in the presence of PSBP at a concentration of 0.5 g/L (—), CTAB at a concentration of 0.05 g/L (—), and PSBP/CTAB at a concentration of 0.084 g/L (—) in 0.1 M aqueous solutions.



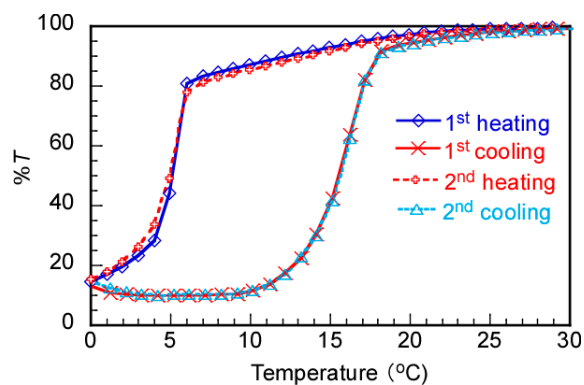
**Figure S4.** Percent transmittance (%T) of an aqueous PSBP at a concentration of 3.0 g/L as a function of temperature upon heating and cooling processes.



**Figure S5.** (a) Percent transmittance ( $\%T$ ) of aqueous PSBP solutions as a function of temperature at different polymer concentrations ( $C_p$ ) and (b)  $C_p$  dependence of the phase transition temperature ( $T_p$ ) of an aqueous PSPB solution.



**Figure S6.** (a) Percent transmittance (% $T$ ) of aqueous PSBP solutions as a function of temperature at different NaCl concentration ([NaCl]) and (b) [NaCl] dependence of the phase transition temperature ( $T_p$ ) of an aqueous PSPB solution at a concentration of 5.0 g/L.



**Figure S7.** Percent transmittance (% $T$ ) of a 0.1 M NaCl aqueous PSBP/CTAB complex solution with a mixing ratio of 0.5 as a function of temperature upon heating and cooling processes at a complex concentration of 0.084 g/L.