Supporting Information

Design of an LCST - UCST - Type Thermoresponsive Zwitterionic Copolymer

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Table S1 *Hydrodynamic diameter (nm) of ZB-PEG1 and ZB-PEG2

	20ºC	25ºC	30ºC	37ºC	50ºC	65ºC
ZB-PEG1	48.2±0.2 **(0.08)	57.8±0.2 (0.11)	85.3±0.32 (0.38)	1790±132 (0.62)	1530±37 (0.42)	8.8±2.3 (0.19)
ZB-PEG2	33.0±3.3 (0.28)	42.4±0.3 (0.31)	234±0.3 (0.38)	96.3±3.5 (-)	20.6±12.8 (0.25)	11.6±0.3 (0.27)

* DLS measurements was performed in PBS with the polymer concentration of 10 mg/mL.

** Average value of polydispersity index

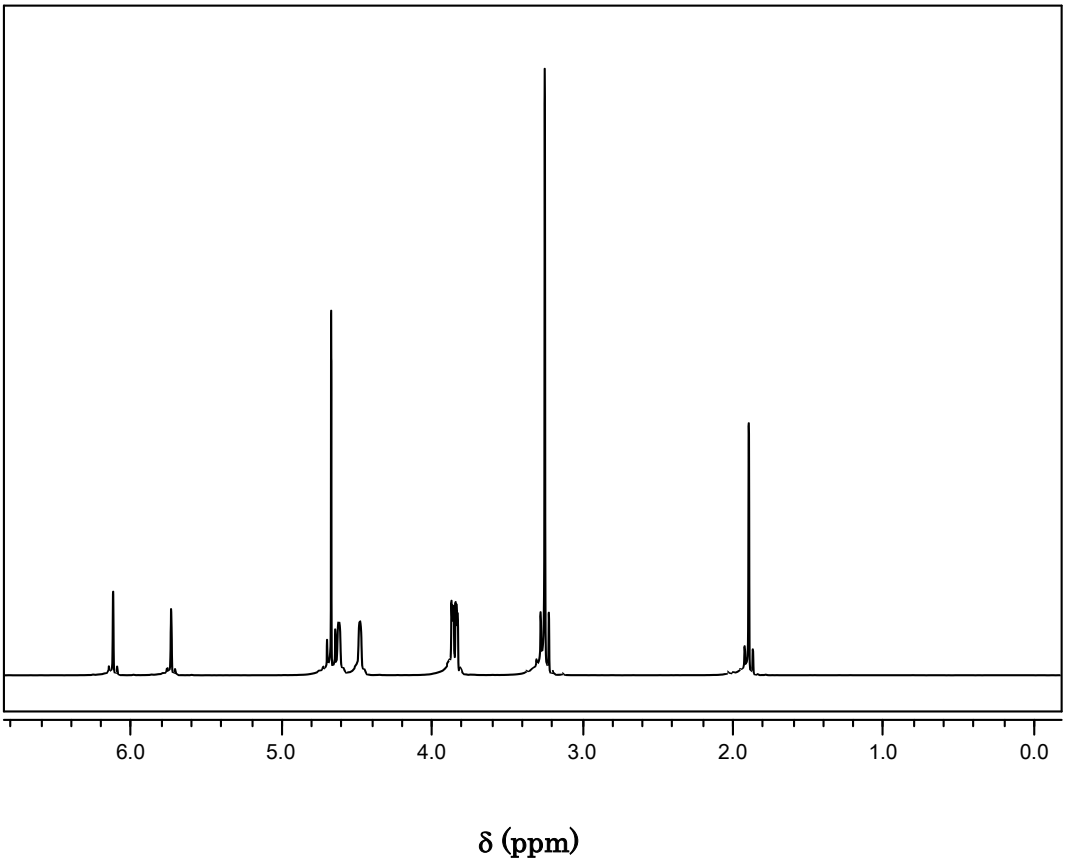

Figure S1. ^{1}H NMR spectrum of ZB monomer in D_2O containing 1M NaCl.

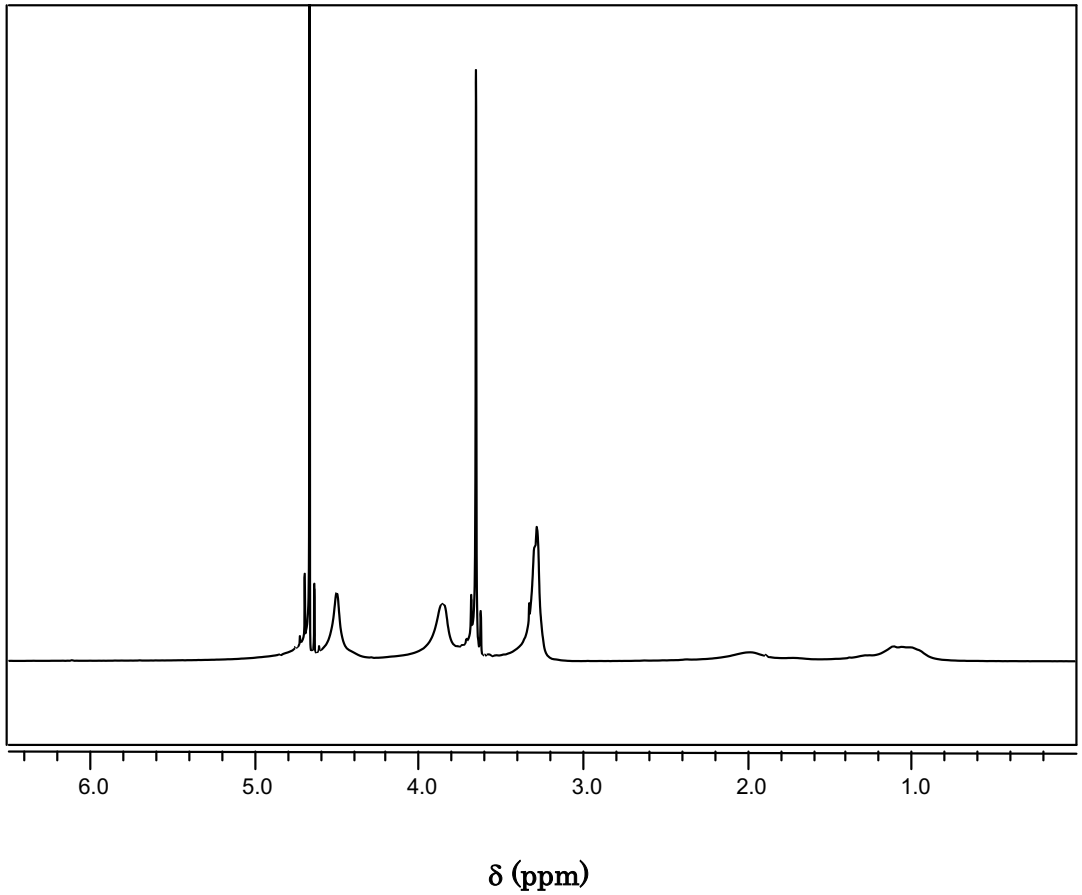

Figure S2 ^{1}H NMR spectrum of ZB-PEG1 in D_2O containing 1M NaCl.

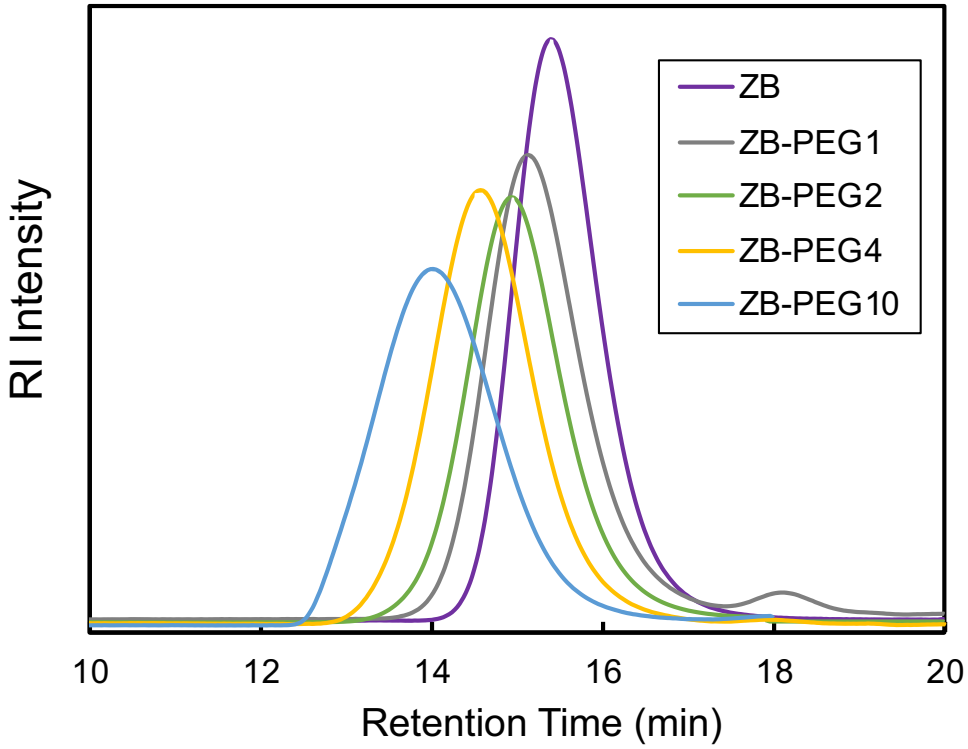

Figure S3 GPC traces of ZB and ZB-PEG copolymers.

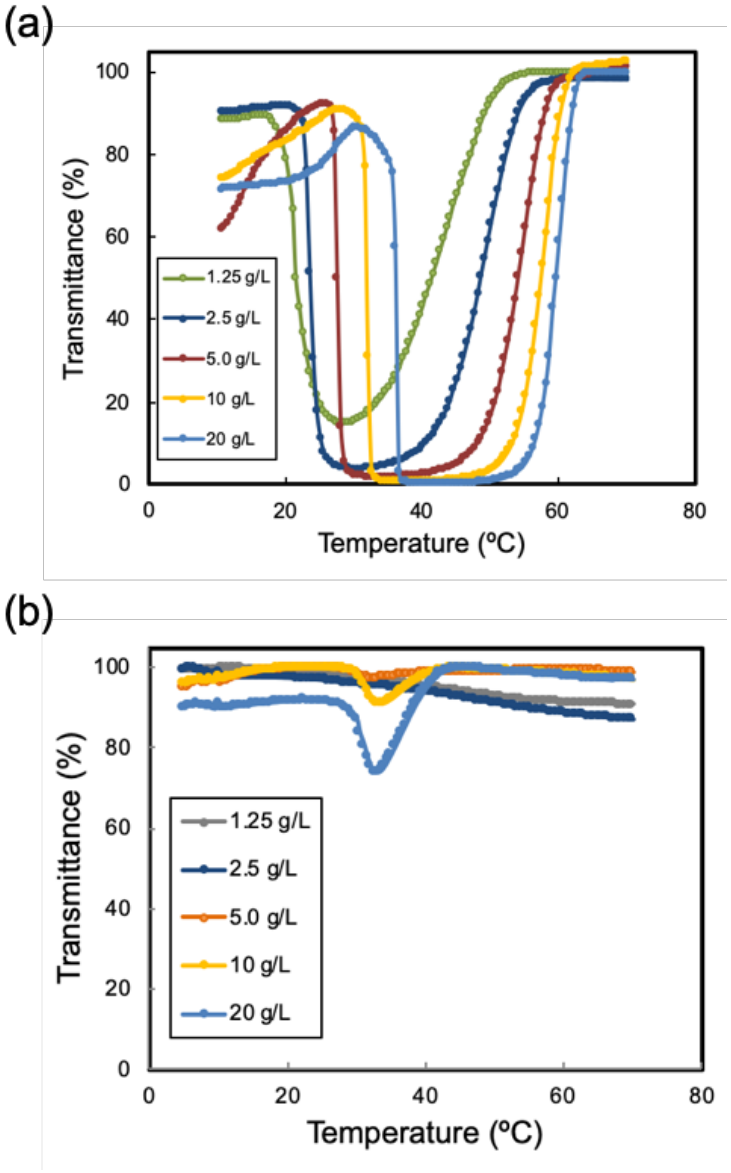

Figure S4 Concentration dependence of (a) ZB-PEG1, (b) ZB-PEG2 solutions (10 mg/mL) on the transmittance in PBS.

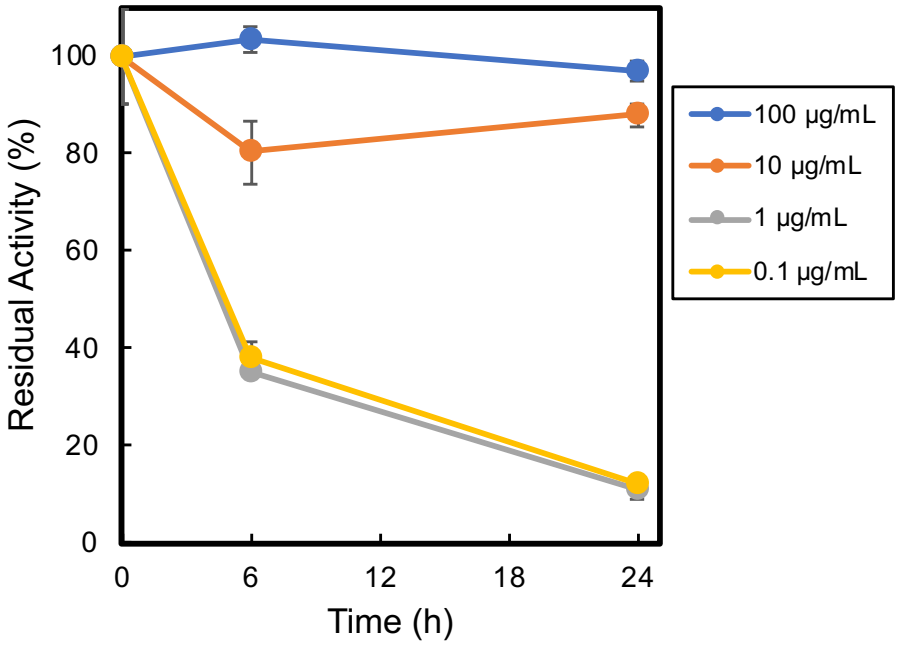

Figure S5 Residual enzyme activity of HRP in various solution concentrations at 20°C.

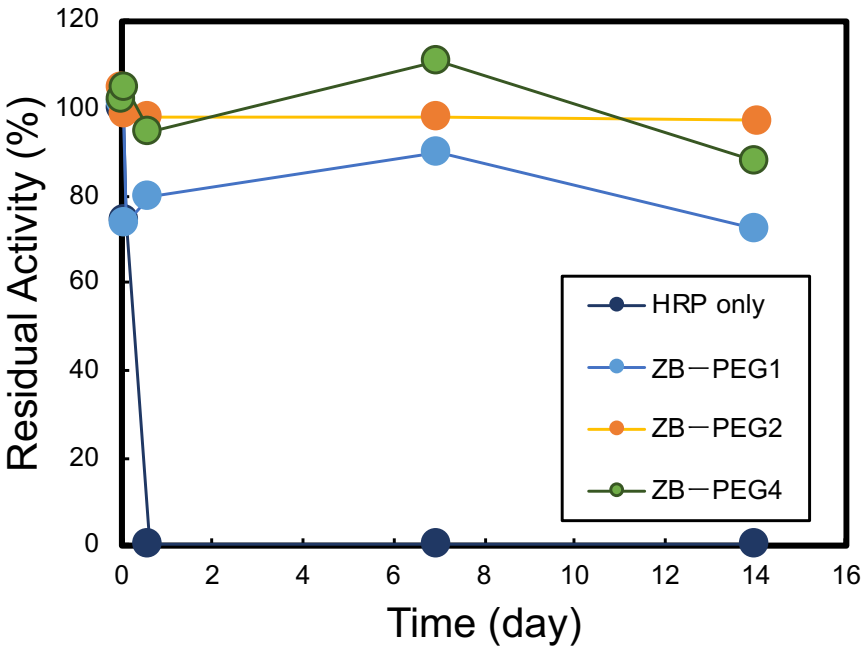

Figure S6 Residual enzyme activity of HRP kept at 4°C in the presence of ZB-PEG.