Supplementary Material

Exploring Poly(ethylene glycol)-Polyzwitterion Diblock Copolymers as Biocompatible Smart Macrosurfactants Featuring UCST-Phase Behavior in Normal Saline Solution

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1. Polymer synthesis

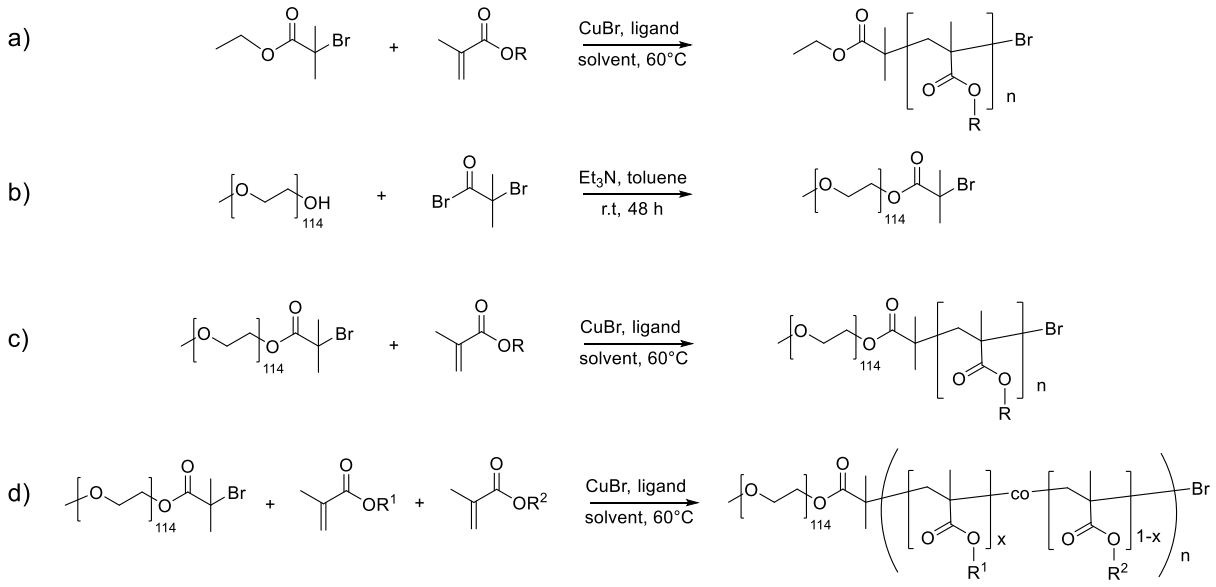

Figure S1. Synthetic pathways to : (a): homopolymers; (b) macroinitator; (c) block copolymers; (d) statistical block copolymers.

2. Polymer characterization

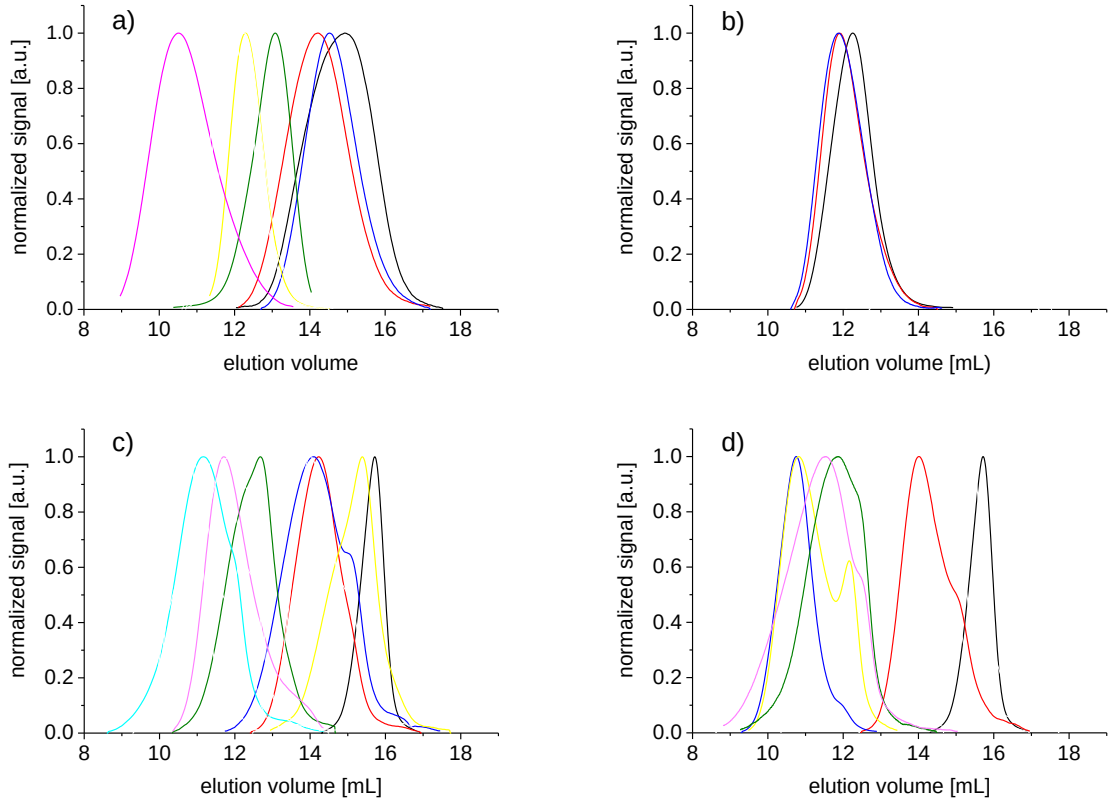

Figure S2. SEC elugrams of the polymer studied (eluent: hexafluoroisopranol (HFIP) containing 50 mM of sodium trifluoroacetate, calibration with narrowly distributed poly(methyl methacrylate) standards.

a) homopolymers: (–––) = **SPE-1**, (–––) = **SPE-2**, (–––) = **SPE-3**, (–––) = **ZPE-1**, (–––) = **ZPE-2**, (–––) = **ZPE-3**;

b) statistical copolymers: (–––) = **PSPE-*co*-ZPE-1**, (–––) = **PSPE-*co*-ZPE-2**, (–––) = **PSPE-*co*-ZPE-3;**

c) macroinitiator **mPEG-Br** (–––), and block copolymers: (–––) = **PEG-*b*-PSPE-1**, (–––) = **PEG-*b*-PSPE-2**, (–––) = **PEG-*b*-PSPE-3**, (–––) = **PEG-*b*-PSPE-4**, (–––) = **PEG-*b*-PSPE-5**; (–––) = **PEG-*b* -PSPE-6;**

d) macroinitiator **mPEG-Br** (–––) =, block copolymers: (–––) = **PEG-*b*-PSBE-1**, (–––) = **PEG-*b*-PSBE-2**, and statistical block copolymers: (–––) = **PEG-*b*-PZPE-1**, (–––) = **PEG-*b*-P(SPE-*co*-ZPE)-1**, (–––) = **PEG-*b*-P(SPE-*co*-ZPE)-2.**

3. Polymer studies in aqueous solution

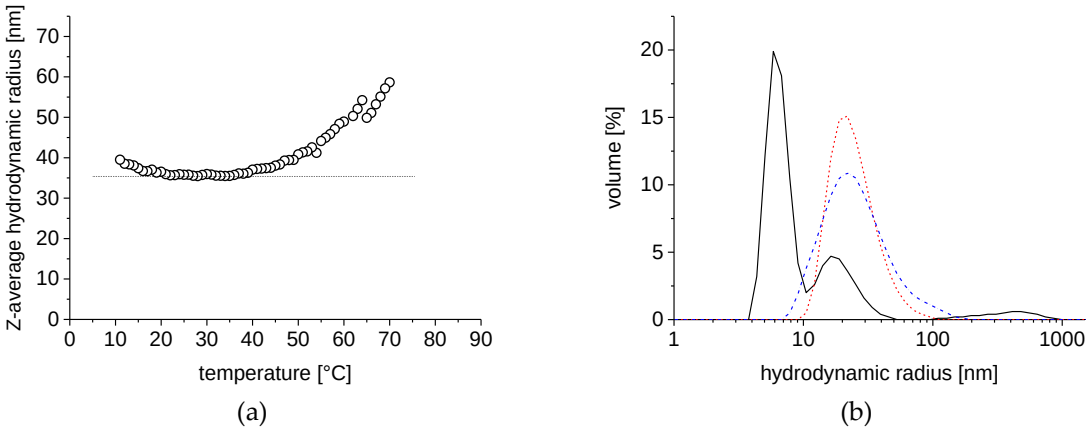

Figure S3. Temperature dependent evolution of the hydrodynamic radius of solutions of block copolymer PEG-*b*-PSBE-1 in water at 30.0 g L^{-1}: (a) average hydrodynamic radius R_h (cooling run, the dotted line is meant as a guide to the eye); (b) distributions of the hydrodynamic radii at 20 °C (·····), 40 °C (- - - -), and 70 °C (———).