Supporting Information for

"Click" PNIPAAm Hydrogels – A Comprehensive Study of Structure and Properties

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Materials

Sulforhodamine B, acid form (Aldrich, dye content 95%) solution was prepared at a concentration of 5.63 x 10^{-5} mg/ml in deionized water.

Characterization

Images were taken using a Carl Zeiss LSM 710 confocal laser scanning microscope with a 561 nm laser. Planar (x-y) scans were obtained with z-stack of up to 10 μm in the sample, at successive depths with a z-step between scans of 2.5 μm. Images taken correspond to an area of 141.4 μm x 141.4 μm with a pixel size of 0.28 μm when using a 60x oil-immersion objective (numerical aperture 0.95). The acquisition time was 90 s per image. Image processing was carried out using ImageJ (http://rsbweb.nih.gov/ij/).

Methods

The phase-separated PNIPAAm hydrogel was prepared by mixing NIPAAm (0.5 g, 4.42 x 10^{-3} mol), 1 wt. % of *N,N'*-methylenebisacrylamide, ammonium persulfate (2.83 x 10^{-3} g, 1.25 x 10^{-5} mol) and tetramethylethylenediamine (0.025 g, 2.13 x 10^{-4} mol) in 2.5 ml of deionized water. The solution was degassed and mixed thoroughly before left standing at room temperature for gelation to occur. A white opaque gel was obtained. The "click"

hydrogel was prepared as described in the full paper using the copper-catalysed click reaction between a RAFT-synthesized 27 kDa PNIPAAm and a four-arm acetylene crosslinker.

Hydrogels were cut into approximately 1 cm x 1 cm pieces and left immersed in sulforhodamine B solution for at least 48 hours before imaging at room temperature.

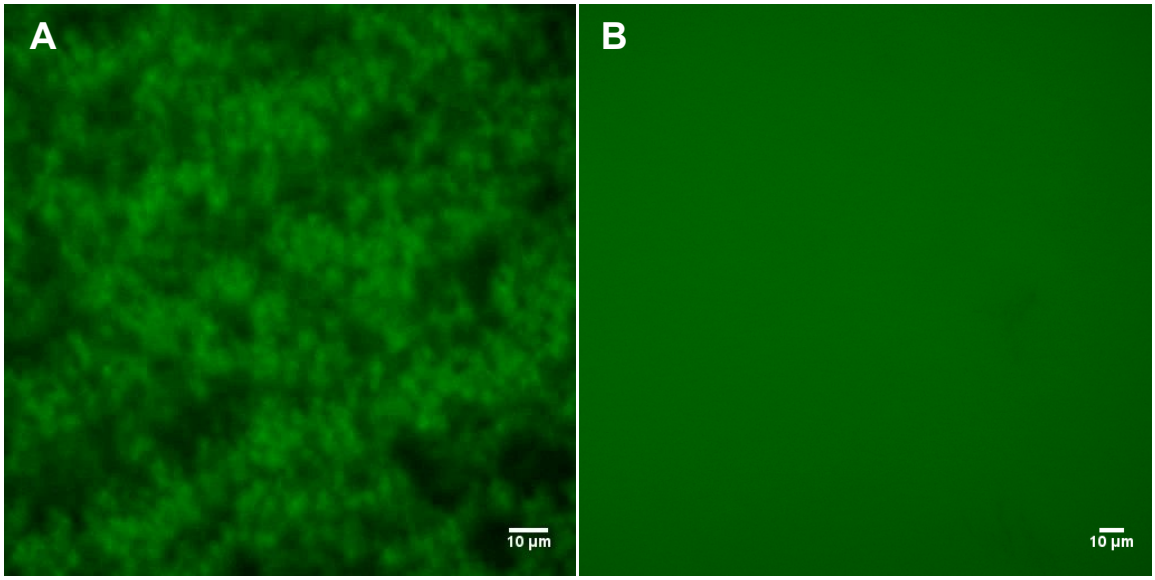

Figure 1. (A) Phase-separated PNIPAAm hydrogel prepared via redox reaction forms structures that are microns in size due to poor solubility of crosslinked PNIPAAm in water and (B) PNIPAAm hydrogel synthesized using copper-catalyzed click reaction displayed a homogeneous structure within the resolution of the microscope.