

Abstract Submitted
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Nanoscale functionalized surface pattern by combining block copolymer template and click chemistry XINYU WEI, WEI CHEN, THOMAS RUSSELL, Univ of Massachusetts Amherst — Poly(ethylene oxide)-b-poly(n-butyl methacrylate-r-3-trimethylsilylprop-2-ynyl methacrylate) block copolymer was successfully prepared by atom transfer radical polymerization (ATRP) starting from a PEO macroinitiator, with good control of molecular weight, polydispersity and comonomer composition. The trimethylsilyl protecting group can then be quantitatively converted to terminal alkyne groups under mild conditions. Microphase separation of these block copolymers has been confirmed by small angle X-ray scattering (SAXS). Orientation of microdomains in thin films can be controlled by thermal or solvent annealing. Nanoparticles or biological macromolecules can be selectively immobilized onto the methacrylate microdomains through the cycloaddition between terminal alkynes and azides, which leads to a functionalized surface pattern for many applications.

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