

Supplementary information

Freezing polystyrene-*b*-poly(2-vinylpyridine) micelle nanoparticles with different nanostructures and sizes

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Table S1. Physical properties of related solvents and polymers.

	PS	P2VP	acetone	THF	H ₂ O
δ [MPa] ^{1/2}	18.6	21.7	19.7	18.5	80.1

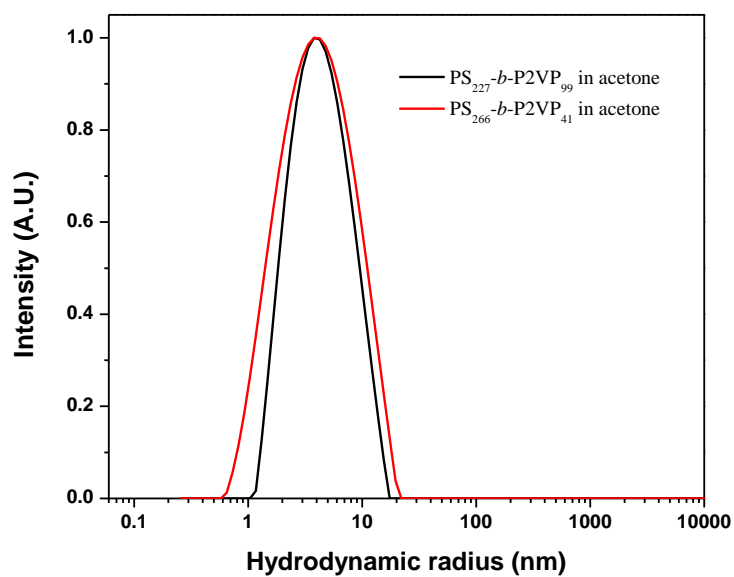


Fig. S1 Hydrodynamic radius distributions of PS-*b*-P2VP acetone solutions based on dynamic light scattering characterizations.

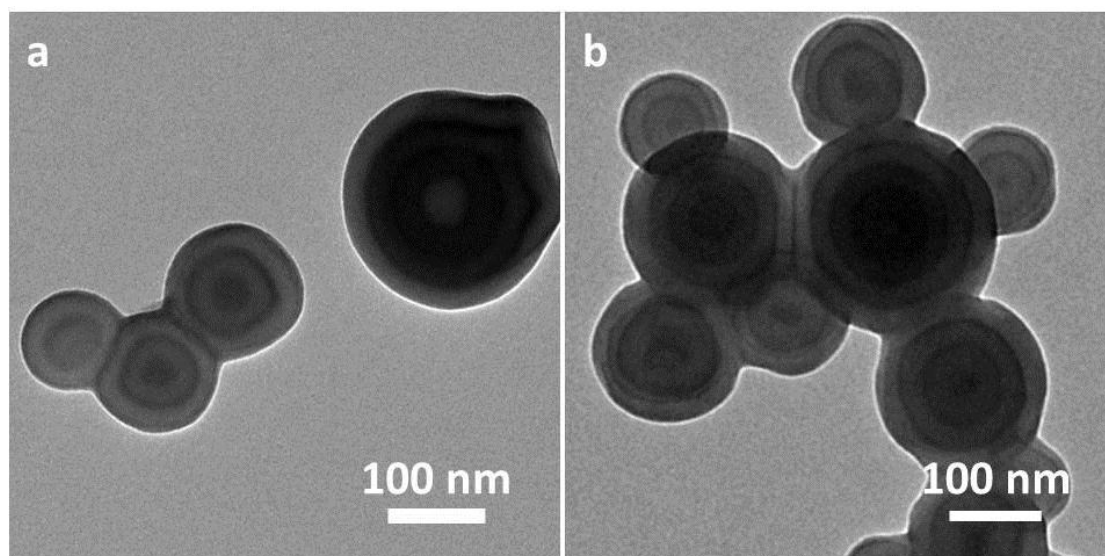
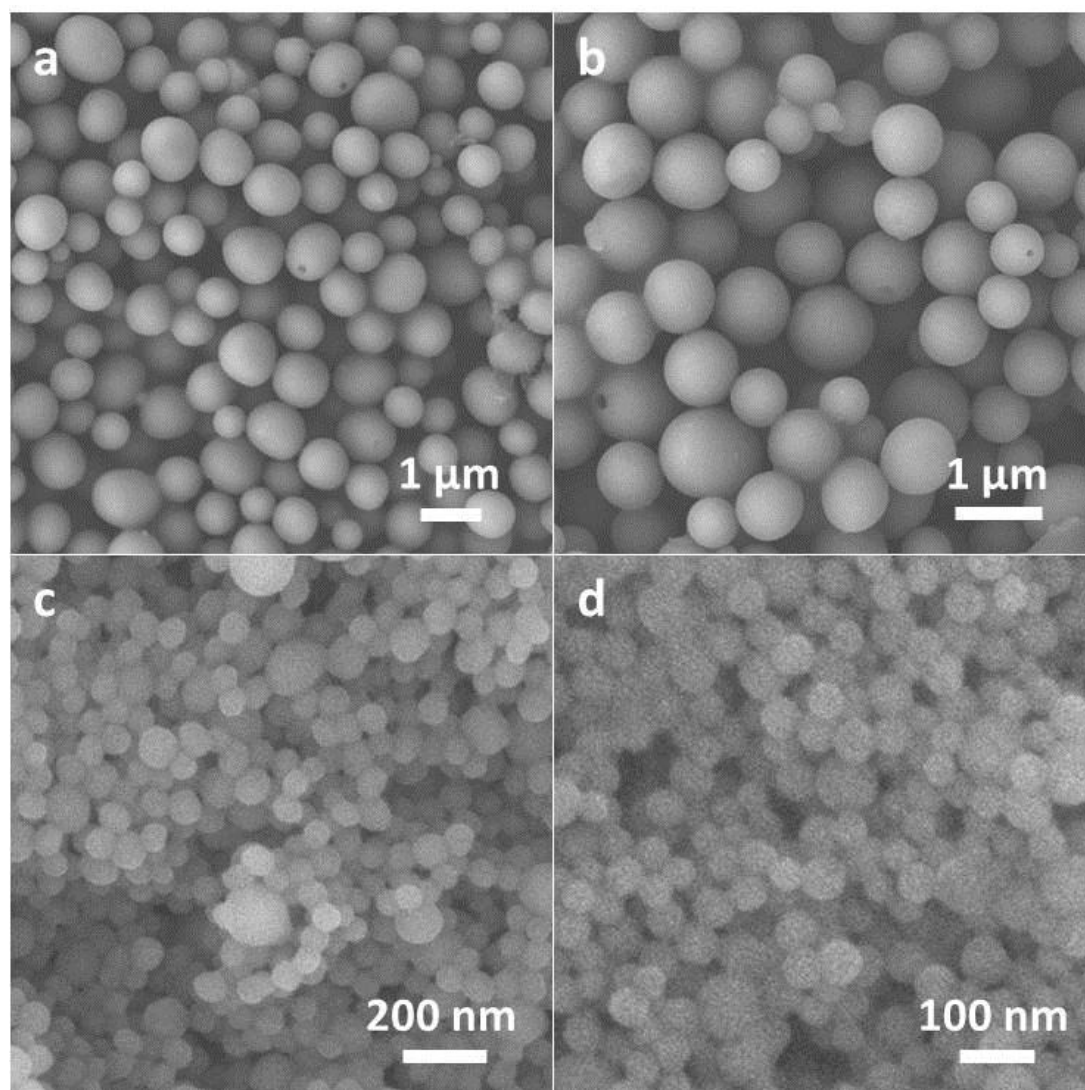


Fig. S2 TEM images of PS-*b*-P2VP nanoparticles produced from acetone, (a) PS₂₂₇-*b*-P2VP₉₉, (b) PS₃₁₂-*b*-P2VP₇₄.



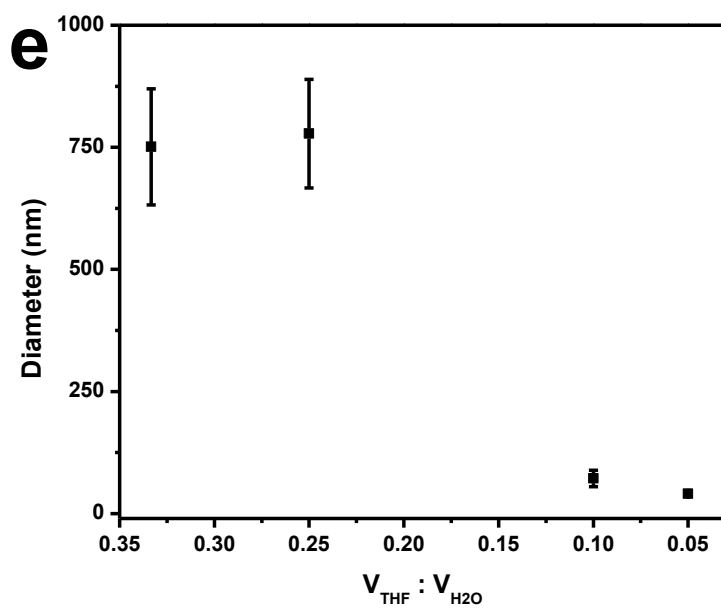


Fig. S3 (a-d) SEM images of $\text{PS}_{266}\text{-}b\text{-P2VP}_{41}$ nanoparticles produced from THF/water system, concentration is 0.4 mg mL^{-1} , $V_{\text{THF}}/V_{\text{H}_2\text{O}}$ is (a) 1:3, (b) 1:4, (c) 1:10, (d) 1:20, respectively. (e) The diameters of $\text{PS}_{266}\text{-}b\text{-P2VP}_{41}$ nanoparticles obtained at different ratio of $V_{\text{THF}}/V_{\text{H}_2\text{O}}$.

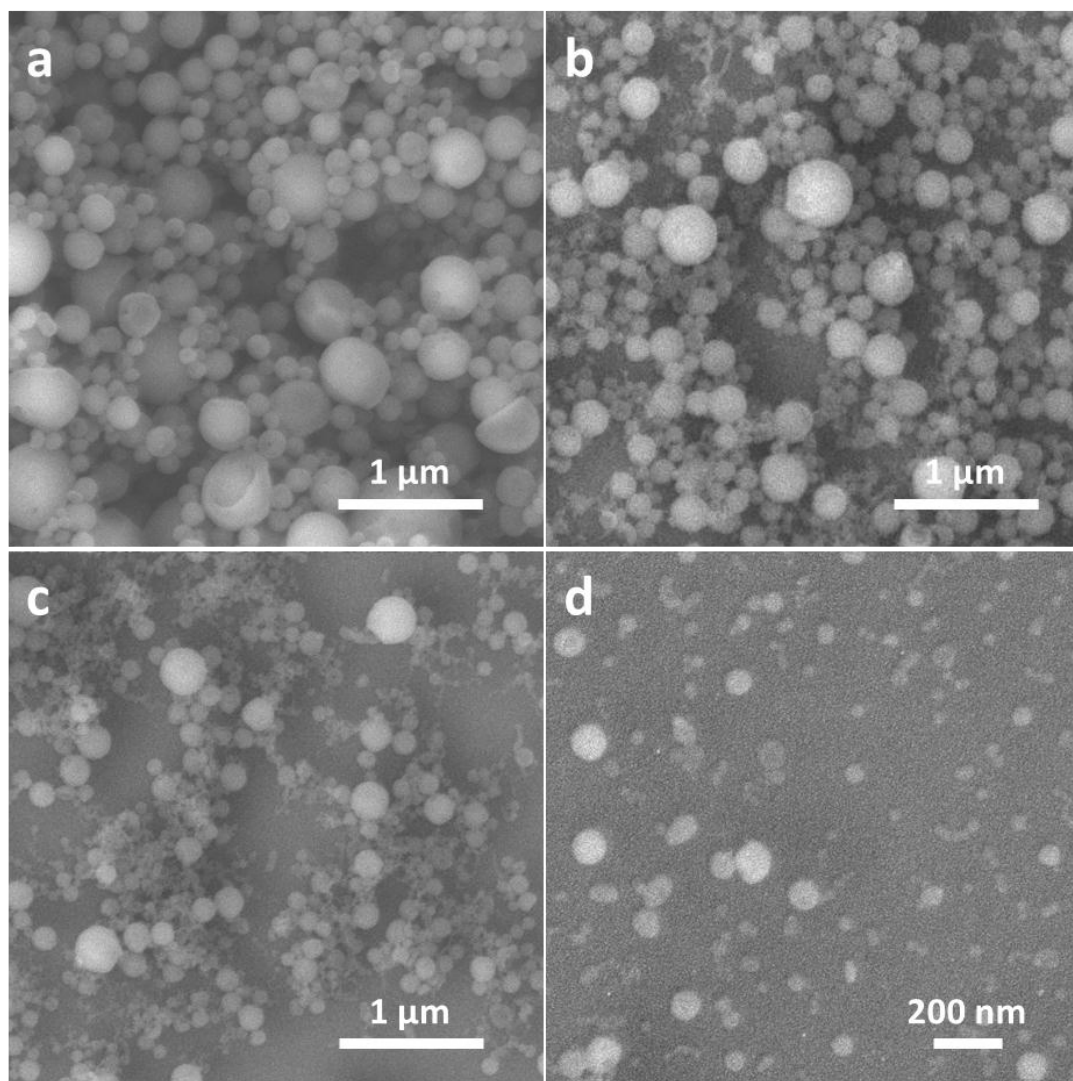


Fig. S4 SEM images of $\text{PS}_{266}\text{-}b\text{-P2VP}_{41}$ nanoparticles produced from acetone/water system, concentration is 1.0 mg mL^{-1} , $V_{\text{acetone}}/V_{\text{H}_2\text{O}}$ is (a) 1:0.5, (b) 1:1, (c) 1:2, (d) 1:5, respectively.

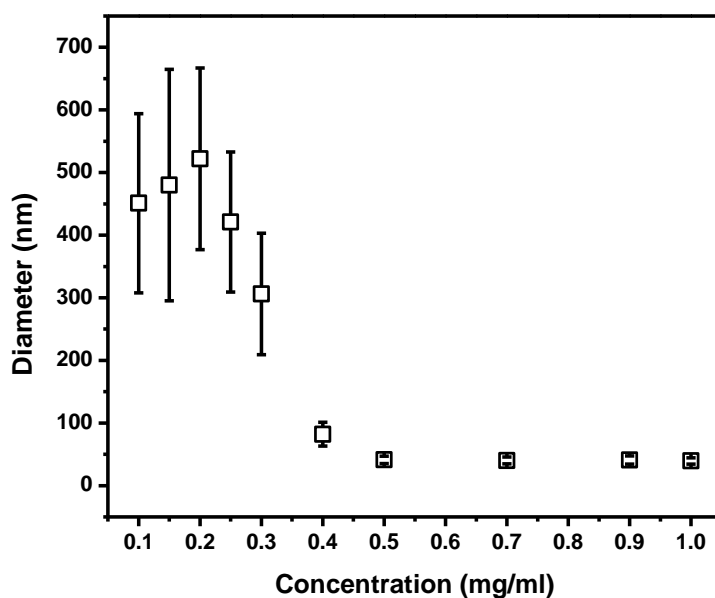


Fig. S5 The variations of PS₂₆₆-*b*-P2VP₄₁ nanoparticles diameter versus BCP concentrations with $V_{\text{THF}}/V_{\text{H}_2\text{O}} = 1:10$.

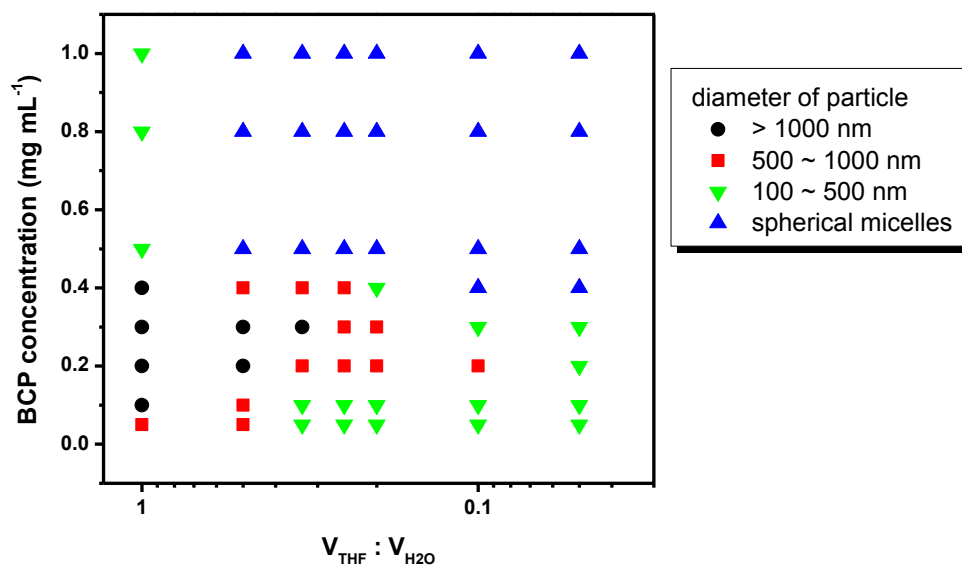


Fig. S6 Phase diagram of relation between particle size, BCP concentration and the ratio of $V_{\text{THF}}/V_{\text{H}_2\text{O}}$.

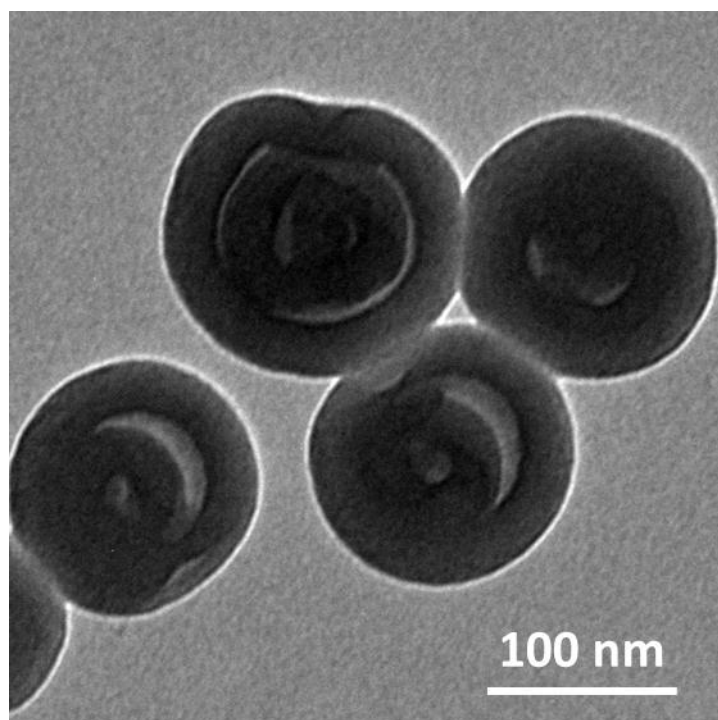


Fig. S7 TEM image of partially-void nanoparticles generated from PBA@PS₂₆₆-*b*-P4VP₄₁ after removal of PBA by ethanol. BCP concentration = 1.0 mg/ml, $V_{\text{acetone}}:V_{\text{H}_2\text{O}} = 2:1$, 2VP/PBA mol ratio is 1:1.