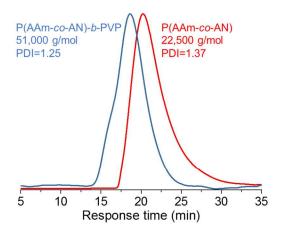
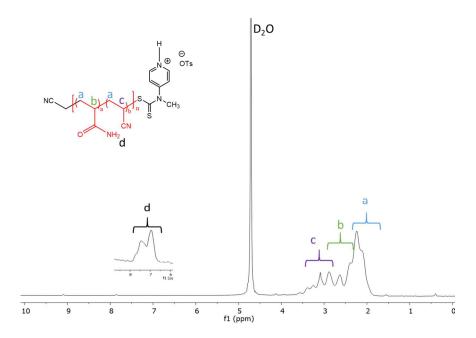
## Swelling Transitions in Layer-by-Layer Assemblies of UCST Block Copolymer Micelles

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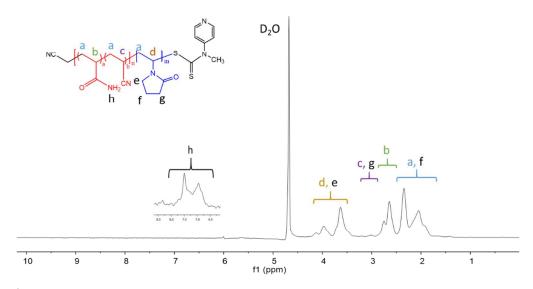
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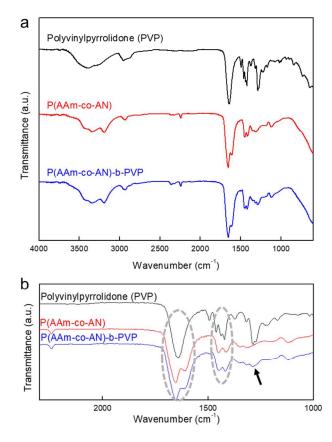
**Fig. S1.** GPC traces of DMSO solutions of poly(acrylamide-*co*-acrylonitrile) copolymer, P(AAm-*co*-AN), and poly(acrylamide-*co*-acrylonitrile)-*b*-polyvinylpyrrolidone, P(AAm-*co*-AN)-*b*-PVP, block copolymer. DMSO was used as an eluent at a flow rate of 0.1 mL/min at 45 °C.



**Fig. S2.**  $^{1}$ H NMR spectra of P(AAm-co-AN) in D<sub>2</sub>O at 70  $^{\circ}$ C. The inset shows the signal for NH<sub>2</sub> protons measured in DMSO- $d_6$  at 25  $^{\circ}$ C.

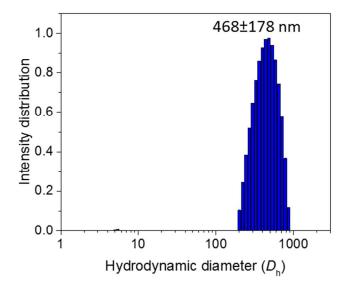


**Fig. S3.**  $^{1}$ H NMR spectra of P(AAm-co-AN)-b-PVP in D<sub>2</sub>O at 70  $^{\circ}$ C. The inset shows the signal for NH<sub>2</sub> protons measured in DMSO- $d_6$  at 25  $^{\circ}$ C.

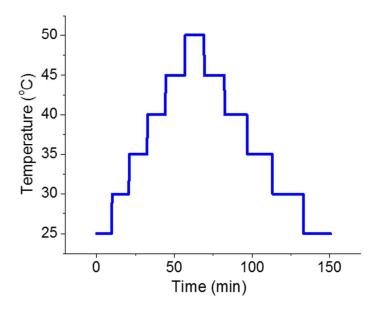


**Fig. S4.** (a) FTIR spectra of PVP, P(AAm-co-AN) and P(AAm-co-AN)-b-PVP; (b) illustration of a spectral overlap in the 1620-1690 and 1400-1480 cm<sup>-1</sup> spectral regions (circled), and

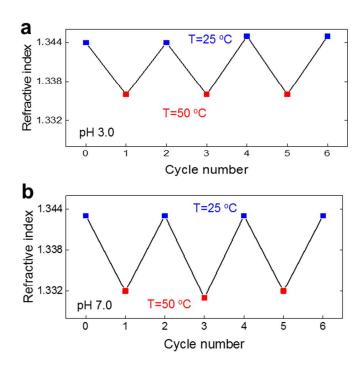
emergence in the spectrum of P(AAm-*co*-AN)-*b*-PVP of a band at 1291cm<sup>-1</sup> (indicated by arrow) which is associated with C-N stretching vibrations and is indicative of incorporation of PVP within the copolymer.



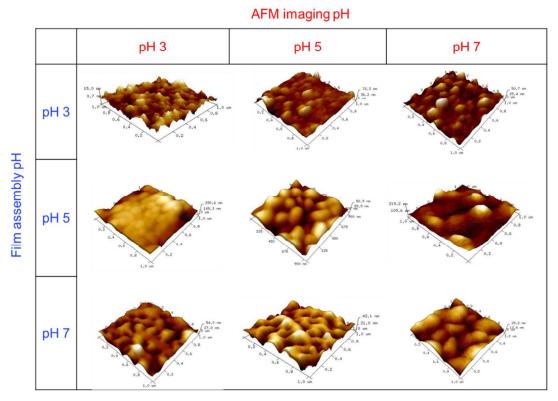
**Fig. S5.** Hydrodynamic diameter in a 2 mg/ml solution of P(AAm-*co*-AN) in PBS (pH 7.0) after 5-min incubation at 22 °C. Prior to measurements, the solution was preheated at 50 °C.



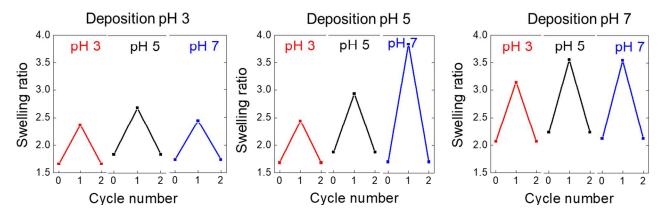
**Fig. S6.** The stepwise heating/cooling profile used for ellipsometry measurements to determine the equilibrium thicknesses of swollen BCM/TA films.



**Fig. S7.** Temperature-induced variations in refractive indices of 2.5-bl BCM/TA films at pH 3.0 (a) and pH 7.0 (b) as measured by *in situ* spectroscopic ellipsometry during alternating exposure of the film to PBS solutions at 25 and 50 °C.



**Fig. S8.** AFM height images of 2.5-bl films deposited at different pH values (3, 5 and 7) when immersed in PBS of varied pH at 25 °C.



**Fig. S9.** *In situ* ellipsometry measurements of swelling of 2.5-bl films during one 25-50°C temperature cycle. The films were deposited at different pH values (3, 5 and 7) and immersed in PBS of varied acidity.