Supplementary information:

Reconfigurable Photonic Crystals with Optical Bistability Enabled by "Cold" Programming and Thermo-Recoverable Shape Memory Polymers

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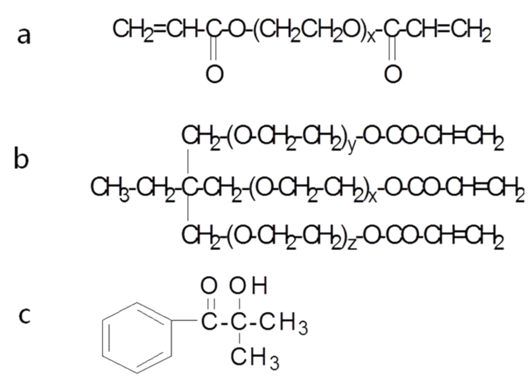

Fig. S1 Molecular structures of (a) EO15TMPTA (x + y + z = 15), (b) PEG600DA (x = 12), and (c) Darocur 1173.

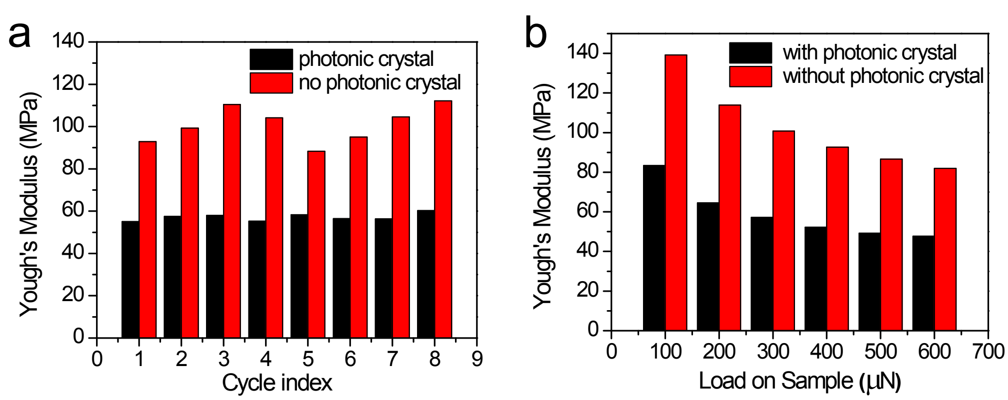

Fig. S2 Comparison of the Young's moduli of EO15TMPTA-co-PEG600DA (1:4 ratio) polymer membrane with 300 nm macroporous layer and pure film without macropores indented with 300 µN force for eight times (a) and different forces (b).

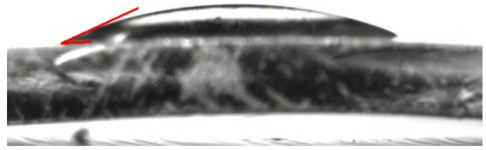

Fig. S3 Water drop profile on a freshly prepared PEG600DA-co-EO15TMPTA copolymer membrane with 300 nm macropores.

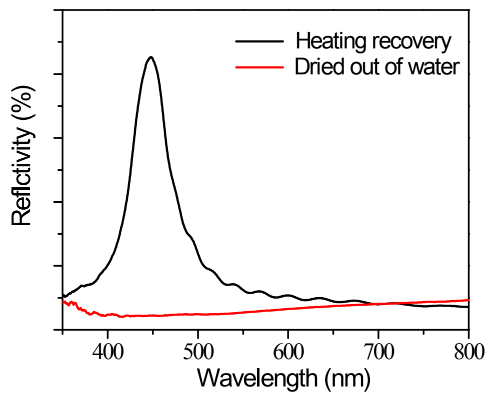

Fig. S4 Normal-incidence optical reflection spectra obtained from the photonic crystal membrane with 240 nm macropores after drying out of water and heating recovery.

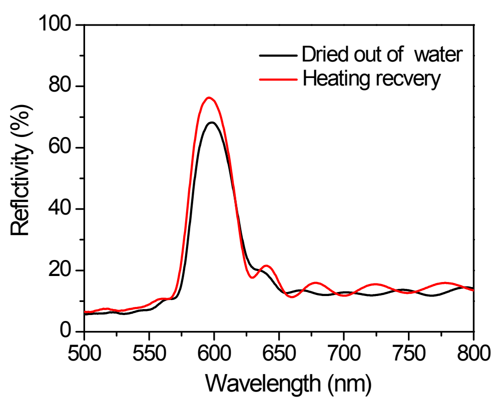

Fig. S5 Normal-incidence optical reflection spectra obtained from the photonic crystal membrane with 350 nm macropores after drying out of water and heating recovery.

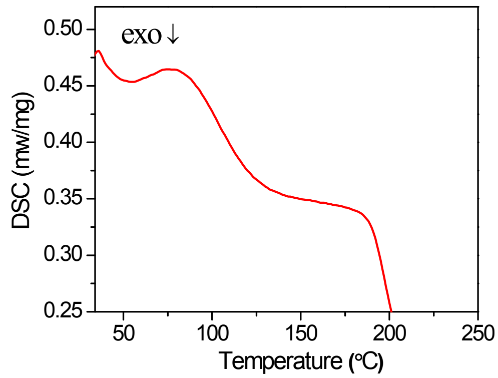

Fig. S6 Typical DSC plot of pure PEG600DA-co-EO15TMPTA copolymer without macroporous structure.

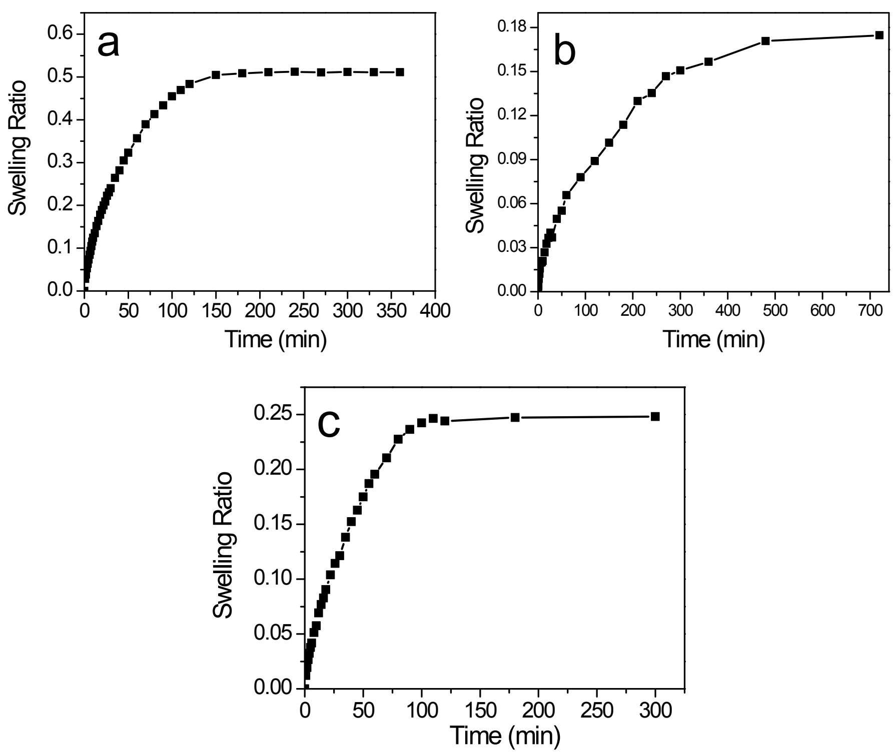

Fig. S7 Swelling ratios of macroporous PEG600DA-co-EO15TMPTA copolymer membranes immersed in a) water, b) ethanol, c) acetone.

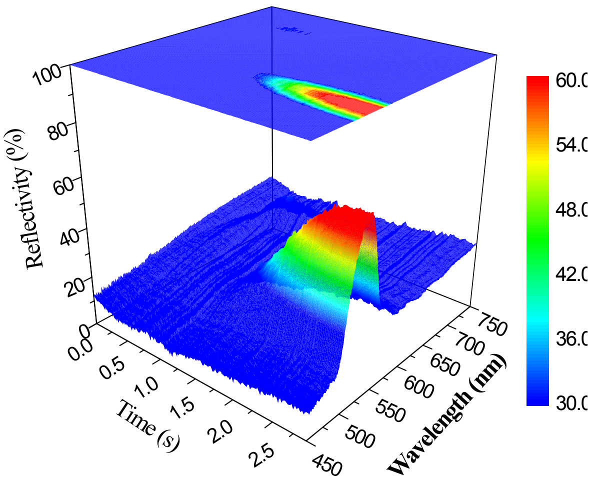

Fig. S8 3D time-resolved, color-coded normal-incidence optical reflection spectrum during thermally induced recovery of the EO15TMPTA-co-PEG600DA copolymer membrane with collapsed 300 nm macropores.

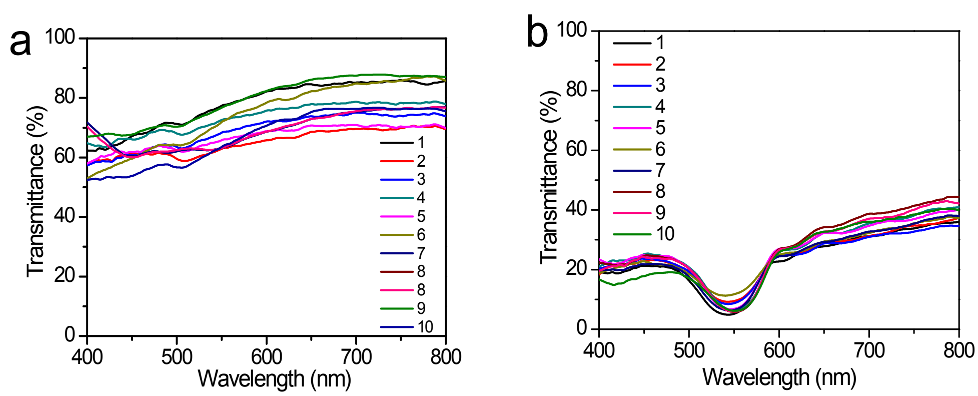

Fig. S9 Normal-incidence optical transmittance spectra obtained from the photonic crystal film with 300 nm macropores after drying out of water (a) and heating recovery for ten times (b).

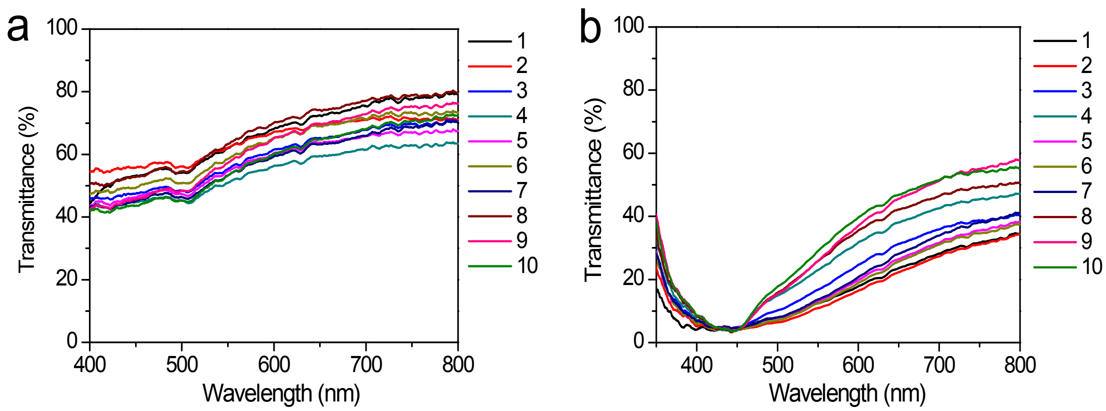

Fig. S10 Normal-incidence optical transmittance spectra obtained from the photonic crystal membrane with 240 nm macropores after drying out of water (a) and heating recovery for ten times (b).