Description of Additional Supplementary Files

Title: Supplementary Movie 1

Description: In situ POM observation is performed on phase transformation of polydomain BPLCs before polymer-stabilization when the sample was cooled from 79.4 $^{\circ}$ C at 0.05 $^{\circ}$ C/min.

Title: Supplementary Movie 2

Description: First 15 circles were recorded by in situ POM to investigate the speed and reversibility of thermoelastic DLPT between BPI and BPII upon cold air flowing.

Title: Supplementary Movie 3

Description: In situ POM characterization on phase transformation of monodomain BPLCs before polymer-stabilization when the sample was cooled from 79.4 $^{\circ}$ C at 0.05 $^{\circ}$ C/min.