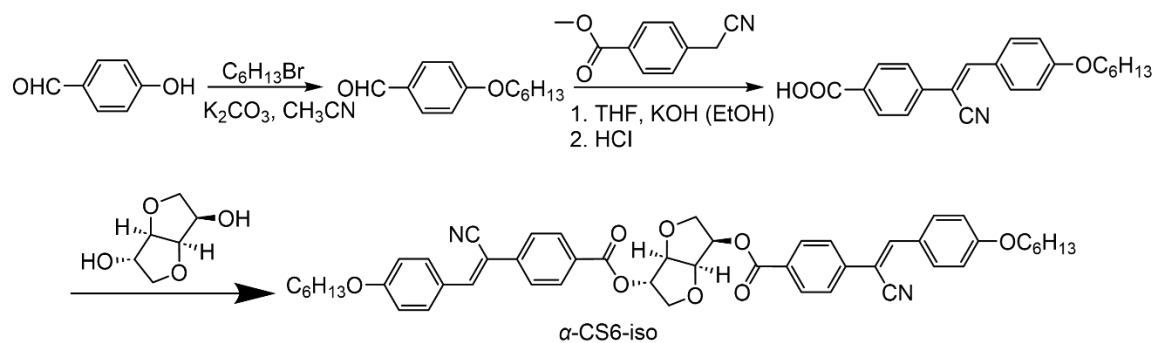

Supplementary information

Patterned cholesteric liquid crystal polymer network film with precisely controlled structural colors prepared using a handedness invertible photochromic cholesteric liquid crystal mixture

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Table S1. Concentrations of compounds in CLC mixtures.

	C6M	CA-Acrylate	α -CS6-iso	S5011	Irgacure 907
Ma1	93.8	0	3.2	0	3.0
Ma2	93.4	0	3.6	0	3.0
Ma3	93.0	0	4.0	0	3.0
Ma4	92.6	0	4.4	0	3.0
Ma5	92.2	0	4.8	0	3.0
Ma6	91.8	0	5.2	0	3.0
Mb1	91.0	3.6	2.4	0	3.0
Mb2	91.0	4.2	1.8	0	3.0
Mb3	91.0	4.8	1.2	0	3.0
Mb4	91.0	5.4	0.6	0	3.0
Mc1	90.0	4.9	2.1	0	3.0
Mc2	90.0	4.2	2.8	0	3.0
Mc3	90.0	3.5	3.5	0	3.0
Md1	90.2	0	7.5	2.3	0
Me1	82.4	0	11.0	3.4	3.2
Me2	85.3	0	8.8	2.7	3.2
Me3	87.0	0	7.5	2.3	3.2



Scheme S1. Synthetic route for α -CS6-iso.

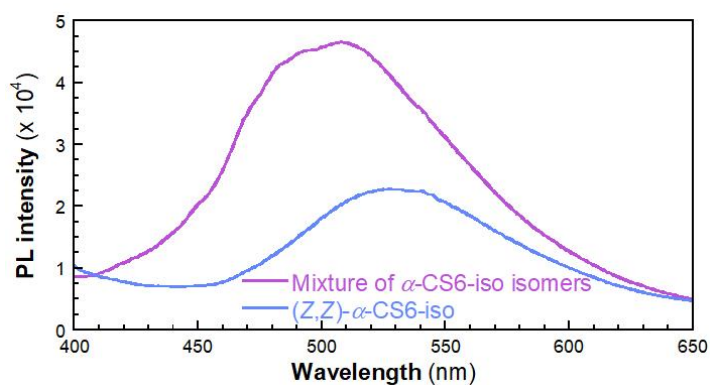


Figure S1. Solid-state fluorescent spectra of (Z,Z)- α -CS6-iso and the mixture of isomers.

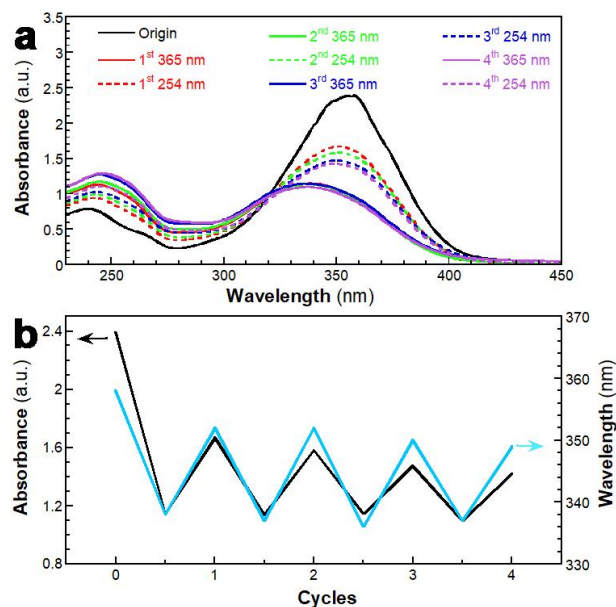


Figure S2. (a) UV-vis spectra and (b) fatigue resistance graphs of α -CS6-iso in CH_2Cl_2 (3.0×10^{-5} M) at 25.0 °C.

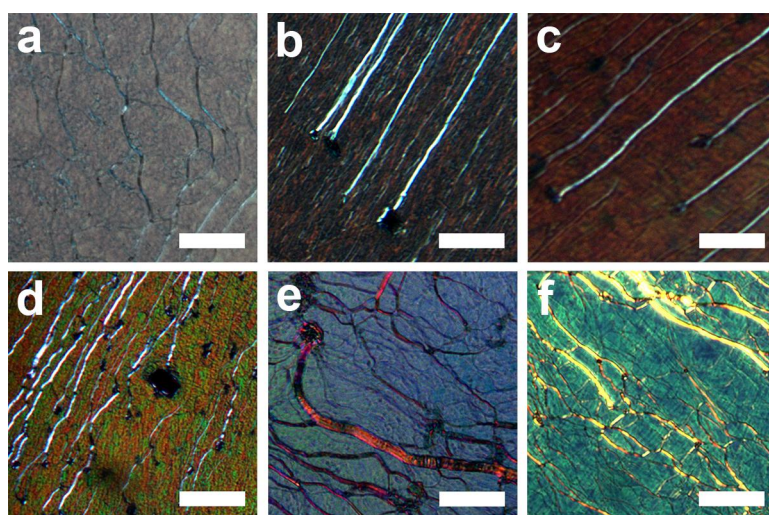


Figure S3. POM images of the CLC mixtures taken at 70.0 °C. (a) Ma1, (b) Ma2, (c) Ma3, (d) Ma4, (e) Ma5 and (f) Ma6 (scale bar, 50 μm).

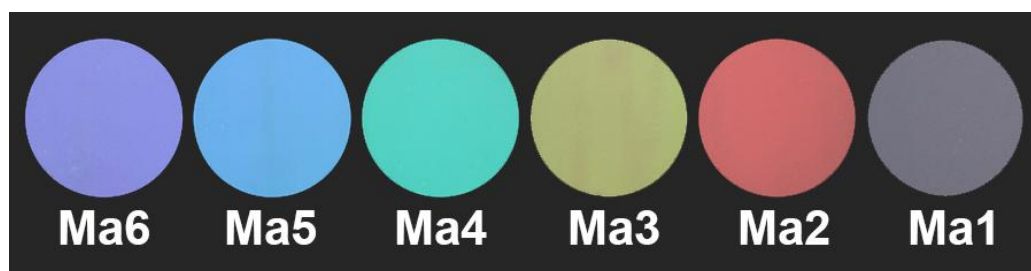


Figure S4. Photographs of the CLCN films with different structural colors.

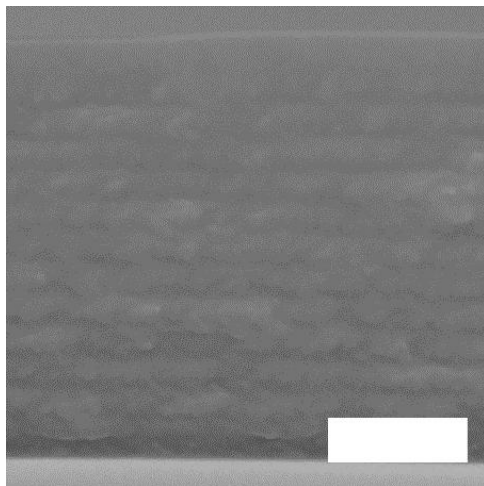


Figure S5. Cross-sectional FESEM image of the CLCN film prepared using the C6M/ α -CS6-iso/Irgacure 907 (w/w/w, 93.8/3.2/3.0) mixture (scale bar, 1.0 μm).

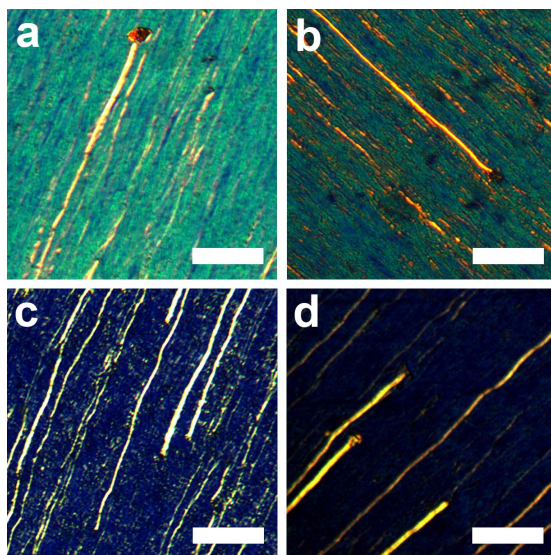


Figure S6. POM images of the CLC mixtures taken at 70.0 °C. (a) Mb1, (b) Mb2, (c) Mb3 and (d) Mb4 (scale bar, 50 μm).

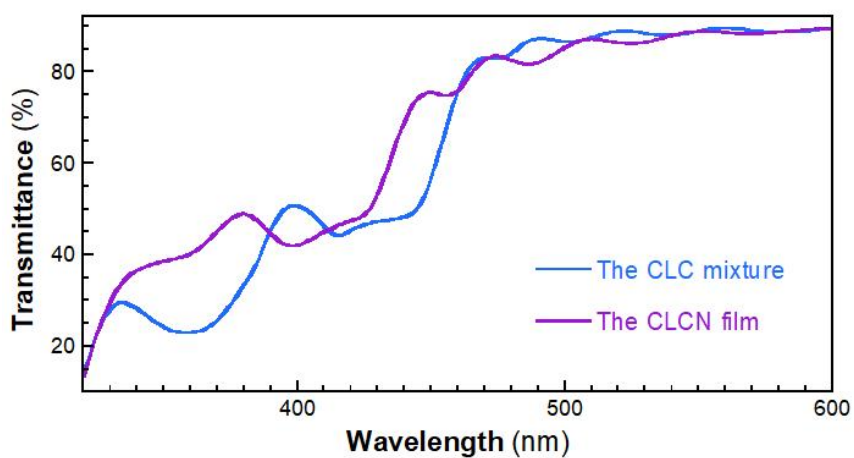


Figure S7. UV-vis spectra of the Mb1 mixture and the corresponding CLCN film.

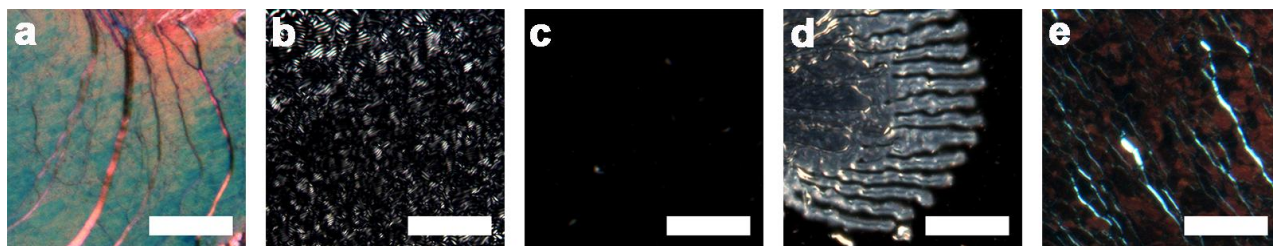


Figure S8. POM images of the CLC mixture (a) before and after being irradiated for (b) 20 s, (c) 25 s, (d) 30 s and (e) 60 s under the 80 W low-pressure Hg lamp (scale bar, 20 μ m).