Electronic Supplementary Material (ESI) for Journal of Materials Chemistry C.

Supplementary Information

Spontaneous formation of liquid crystalline nucleus in blue phase liquid crystals based on different chirality

Xiaowan Xu, Yanjun Liu and Dan Luo*

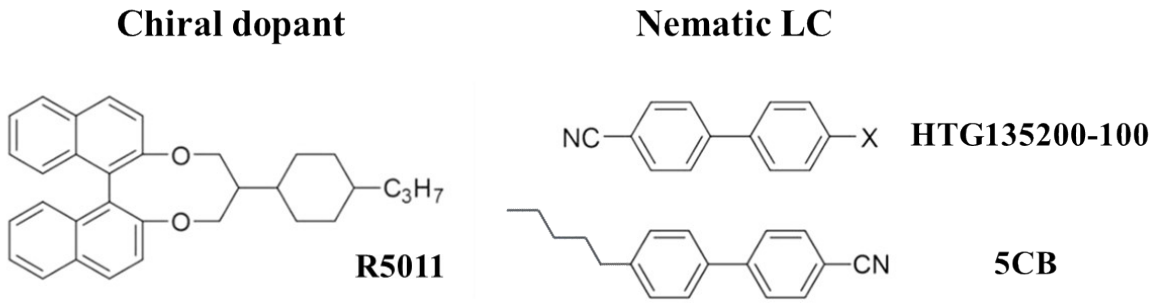

Fig. S1 Molecular structures of chiral dopant R5011 and nematic liquid crystal HTG135200-100 and 5CB.

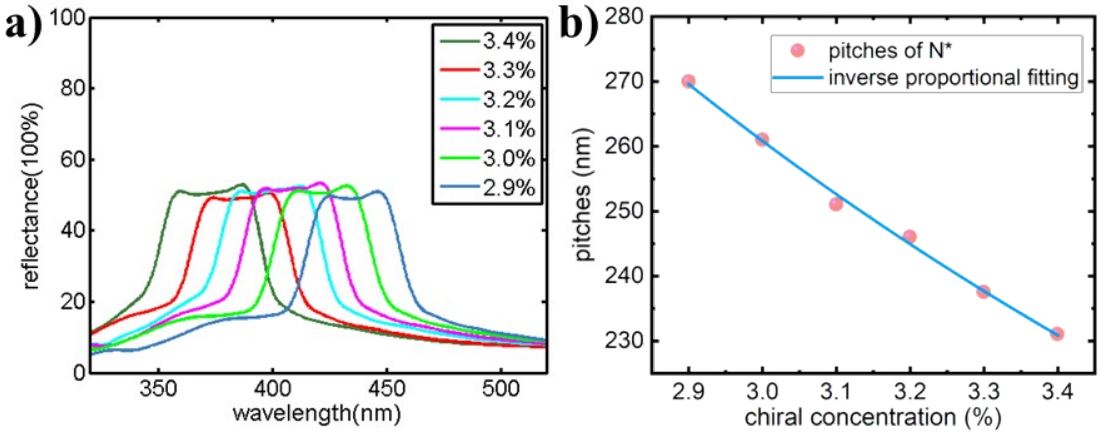

Fig. S2 a) The reflective spectra of chiral nematic liquid crystal Sample A1-A6, b) the helical pitches of corresponding samples.

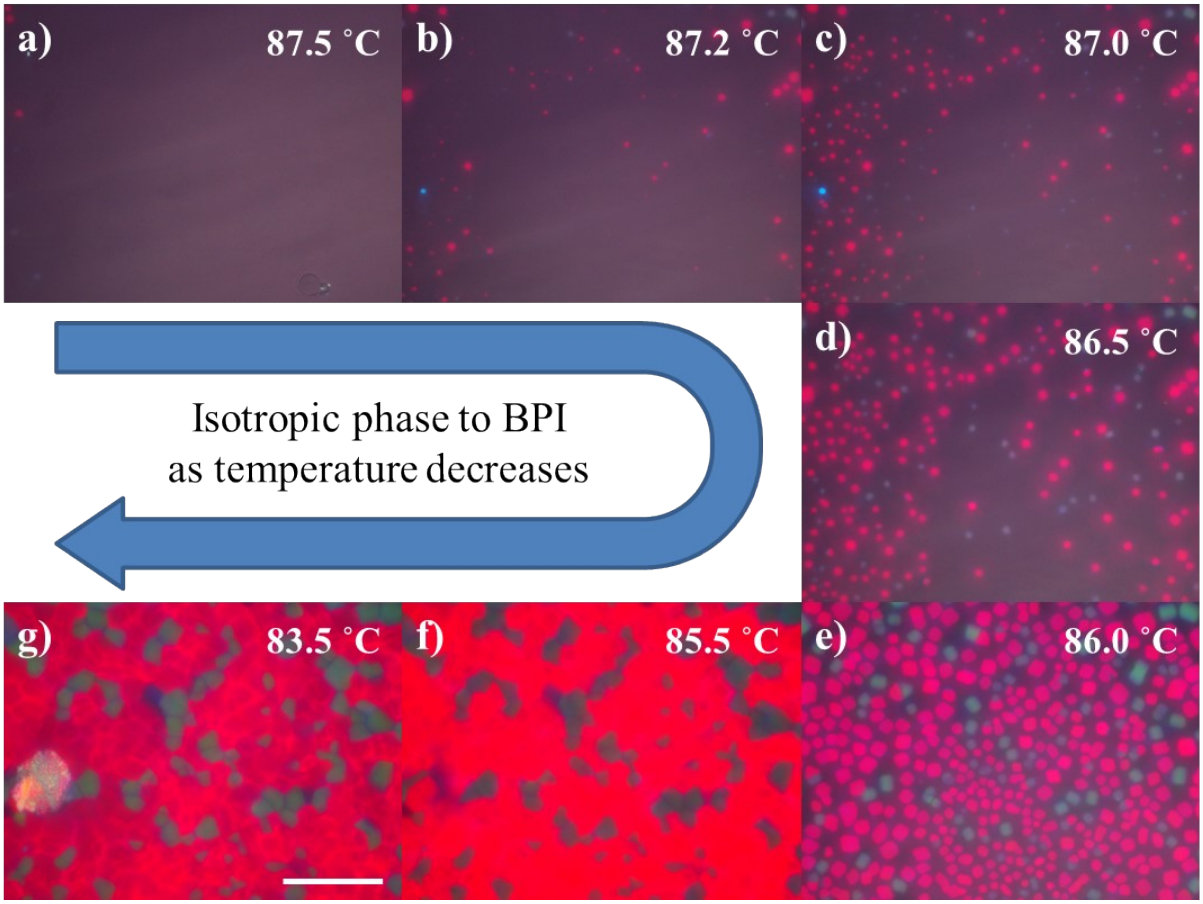

Fig. S3 The POM images of BPLCs emerges at the cooling process of sample A1: (a) 87.5 ˚C, (b) 87.2 ˚C, (c) 87.0 ˚C, (d) 86.5 ˚C, (e) 86.0 ˚C, (f) 85.5 ˚C, (g) 83.0 ˚C, scale bar: 100 μm.

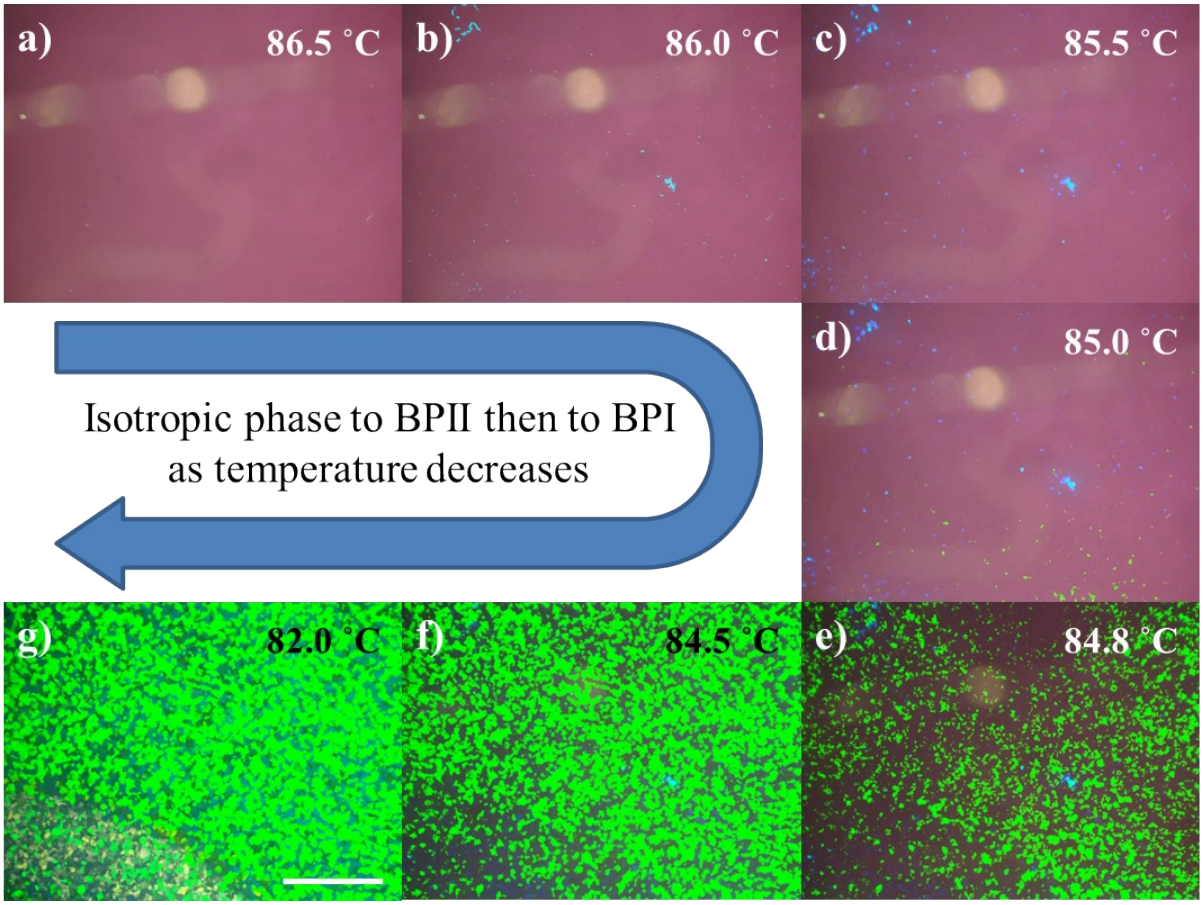

Fig. S4 The POM images of BPLCs emerges at the cooling process of sample A6: (a) 86.5 ˚C, (b) 86.0 ˚C, (c) 85.5 ˚C, (d) 85.0 ˚C, (e) 84.8 ˚C, (f) 84.5 ˚C, (g) 82.0 ˚C, scale bar: 100 μm.

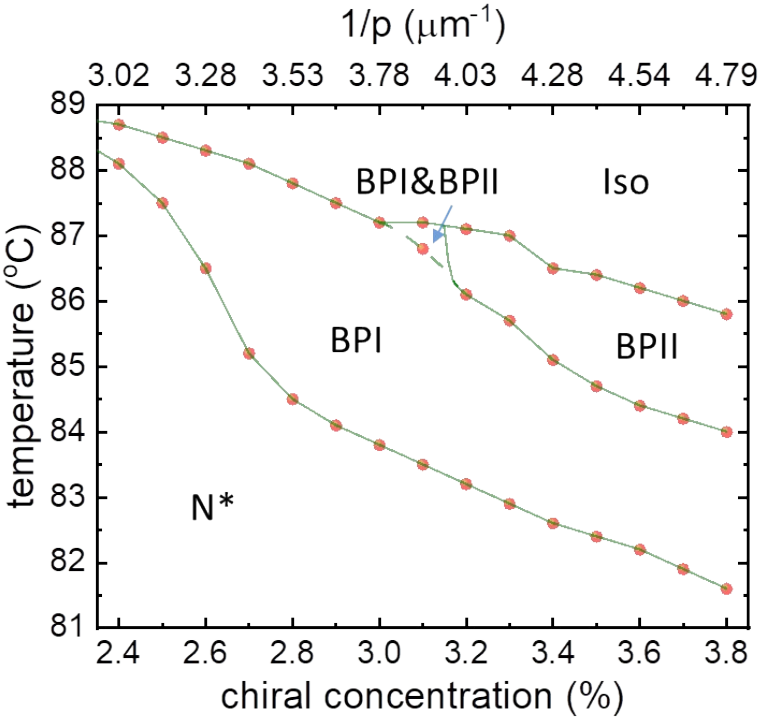

Fig. S5 The phase diagram between liquid crystal host HTG135200-100 and chiral dopant R5011.

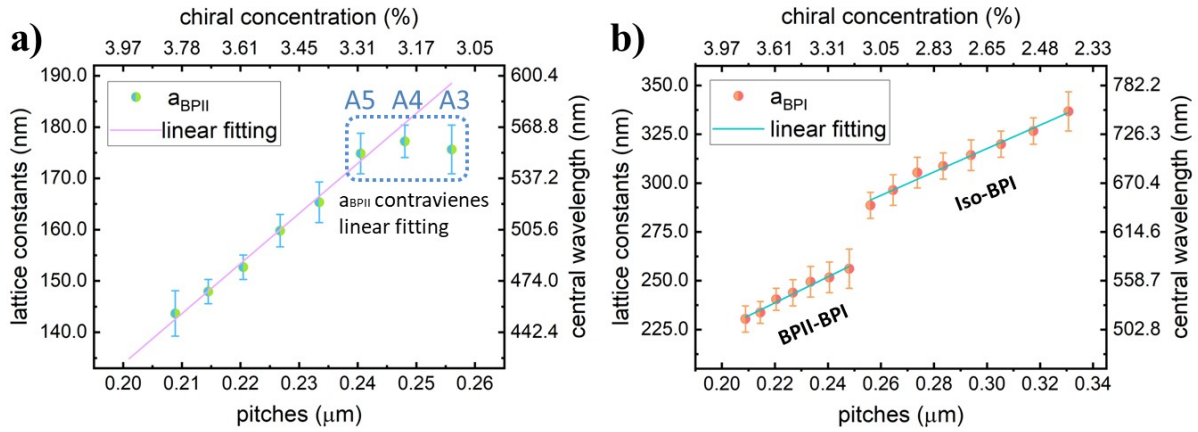

Fig. S6 The relationship between lattice constants of BPs and helical pitches of N*.

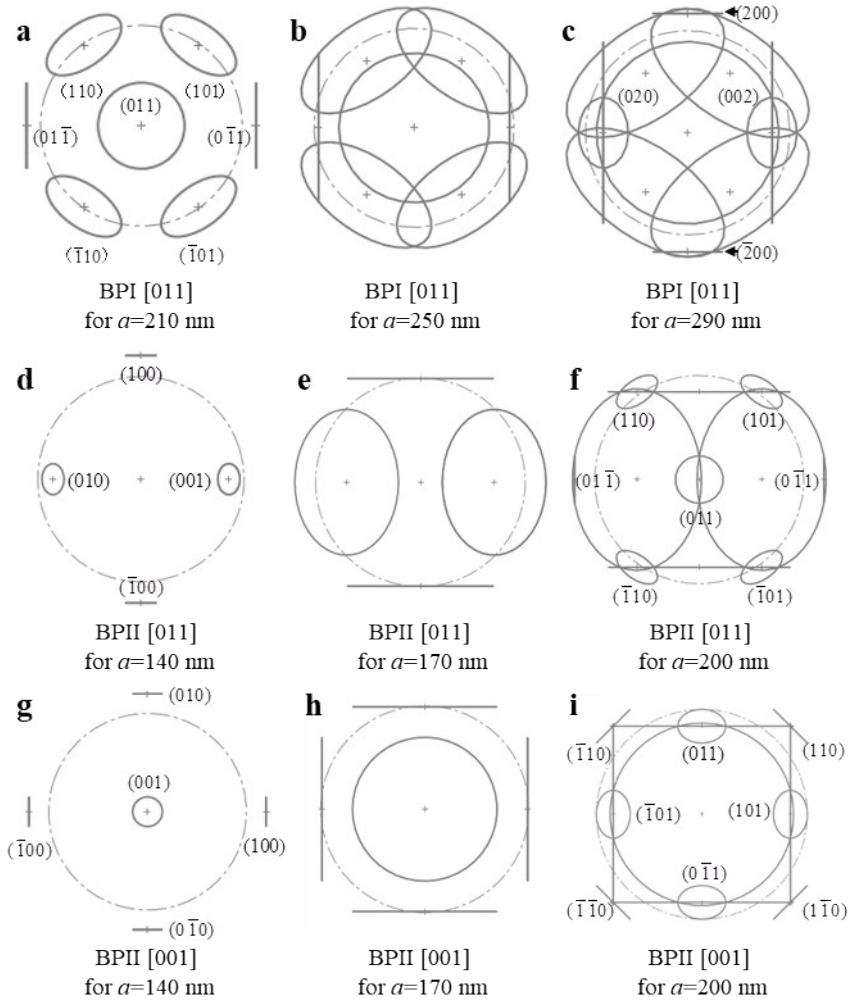

Fig. S7 The simulated Kossel diagrams of BPI [011] orientation with different lattice constants: (a) a=210 nm, (b) a=250 nm, (c) a=290 nm. The simulated Kossel diagrams of BPII [011] orientation with different lattice constants: (d) a=140 nm, (e) a=170 nm, (f) a=200 nm. The simulated Kossel diagrams of BPII [001] orientation with different lattice constants: (g) a=140 nm, (h) a=170 nm, (i) a=200 nm.