

## Simple and efficient chiral dopant molecules possessing both rod- and arch-like units

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### Electric supplementary information

- (1) Phase transition behaviors of 5CB and EBBA doped with (*R*)-1, (*R*)-2 and (*R*)-3 are indicated in Tables 1S, 2S and 3S.
- (2) Polarized microphotographs (Fig. S1–S5) of blue phases of 5CB and EBBA doped with (*R*)-1, (*R*)-2 and (*R*)-3.

**Table 1S.** Phase transition behaviours of 5CB and EBBA doped with (*R*)-1

entry	mol%	LC compound	phase transition temperature (°C)
1	1	5CB	N* $\xrightleftharpoons[35.4]{35.6}$ Iso
2	2	5CB	N* $\xrightleftharpoons[35.8]{35.8}$ BP <sup>a</sup> $\xrightleftharpoons[36.3]{36.3}$ Iso
3	3	5CB	N* $\xrightleftharpoons[35.7]{36.2}$ Iso
4	2	EBBA	N* $\xrightleftharpoons[75.6]{76.4}$ Iso
5	3	EBBA	N* $\xrightleftharpoons[75.0]{75.1}$ BP <sup>a</sup> $\xrightleftharpoons[75.3]{75.7}$ Iso
6	4	EBBA	N* $\xrightleftharpoons[74.6]{75.1}$ BP <sup>a</sup> $\xrightleftharpoons[75.3]{75.3}$ BP <sup>b</sup> $\xrightleftharpoons[75.7]{75.7}$ Iso
7	5	EBBA	N* $\xrightleftharpoons[68.9]{69.4}$ BP <sup>a</sup> $\xrightleftharpoons[69.3]{69.3}$ Iso
8	6	EBBA	N* $\xrightleftharpoons[73.1]{73.8}$ Iso

N\*: chiral nematic phase, BP: blue phase, Iso: isotropic liquid. <sup>a</sup> BP with a platelet texture. <sup>b</sup> BP with a fog texture.

**Table 2S.** Phase transition behaviours of EBBA doped with (*R*)-2

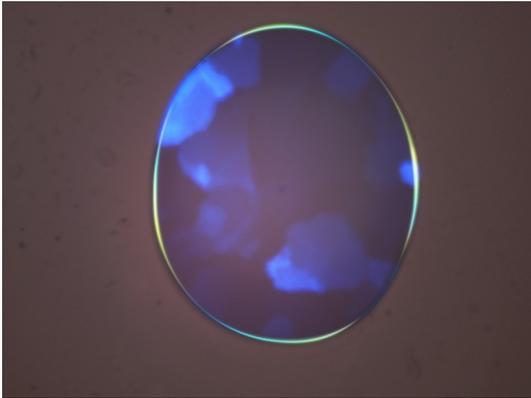
entry	mol%	LC compound	phase transition temperature (°C)	
1	3	5CB	N* $\xrightleftharpoons[34.4]{34.5}$	Iso
2	4	5CB	N* $\xrightleftharpoons[34.5]{35.0}$	BP $\xrightleftharpoons[35.0]{35.1}$ Iso
3	5	5CB	N* $\xrightleftharpoons[34.5]{35.0}$	BP $\xrightleftharpoons[35.0]{35.1}$ Iso
4	6	5CB	recrystallization of dopant	
5	3	EBBA	N* $\xrightleftharpoons[79.9]{79.8}$	Iso
6	4	EBBA	N* $\xrightleftharpoons[73.8]{73.9}$	BP <sup>a</sup> $\xrightleftharpoons[74.3]{74.3}$ Iso
7	5	EBBA	N* $\xrightleftharpoons[69.9]{70.0}$	BP <sup>a</sup> $\xrightleftharpoons[70.8]{70.8}$ BP <sup>b</sup> $\xrightleftharpoons[70.8]{70.8}$ Iso
8	6	EBBA	N* $\xrightleftharpoons[72.1]{72.3}$	BP <sup>a</sup> $\xrightleftharpoons[72.9]{72.8}$ BP <sup>a</sup> $\xrightleftharpoons[73.0]{72.9}$ BP <sup>b</sup> $\xrightleftharpoons[73.1]{73.1}$ Iso
9	7	EBBA	N* $\xrightleftharpoons[72.6]{73.0}$	BP <sup>a</sup> $\xrightleftharpoons[73.7]{73.6}$ Iso
10	8	EBBA	N* $\xrightleftharpoons[73.1]{73.3}$	BP <sup>a</sup> $\xrightleftharpoons[74.1]{73.8}$ Iso
11	9	EBBA	N* $\xrightleftharpoons[64.6]{65.1}$	BP <sup>a</sup> $\xrightleftharpoons[66.5]{66.9}$ Iso
12	10	EBBA	recrystallization of dopant	

N\*: chiral nematic phase, BP: blue phase, Iso: isotropic liquid. <sup>a</sup> BP with a platelet texture. <sup>b</sup> BP with a fog texture.

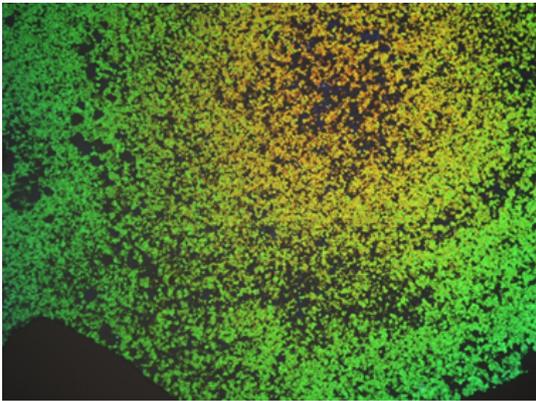
**Table 3S.** Phase transition behaviours of 5CB and EBBA doped with (*R*)-3

entry	mol%	LC compound	phase transition temperature (°C)
1	3	5CB	N* $\xrightleftharpoons[33.1]{33.2}$ Iso
2	4	5CB	N* $\xrightleftharpoons[32.3]{32.7}$ BP <sup>a</sup> $\xrightleftharpoons[32.8]{32.9}$ Iso
3	5	5CB	recrystallization of dopant
4	3	EBBA	N* $\xrightleftharpoons[74.7]{74.8}$ Iso
5	4	EBBA	N* $\xrightleftharpoons[75.2]{75.7}$ BP <sup>a</sup> $\xrightleftharpoons[75.9]{76.2}$ Iso
6	5	EBBA	N* $\xrightleftharpoons[71.2]{71.3}$ BP <sup>a</sup> $\xrightleftharpoons[71.9]{71.9}$ Iso
7	6	EBBA	recrystallization of dopant

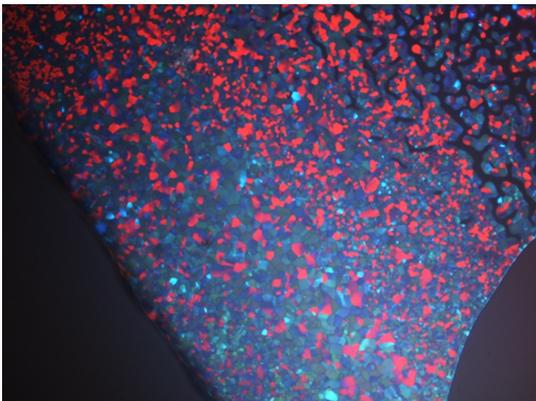
N\*: chiral nematic phase, BP: blue phase, Iso: isotropic liquid. <sup>a</sup> BP with a platelet texture.



**Fig.S1** Polarized microphotograph of the blue phase of EBBA doped with 4 mol% of (*R*)-1 (75.3°C on cooling,  $\times 200$ ).



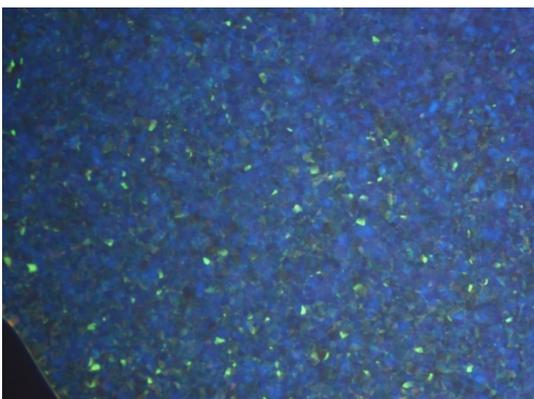
**Fig.S2** Polarized microphotograph of the blue phase of 5CB doped with 5 mol% of (*R*)-2 (34.8°C on cooling,  $\times 100$ ).



**Fig.S3** Polarized microphotograph of the blue phase of EBBA doped with 4 mol% of (*R*)-2 (74.3°C on cooling,  $\times 100$ ).



**Fig.S4** Polarized microphotograph of the blue phase of 5CB doped with 4 mol% of (*R*)-**3** (33.0°C on cooling,  $\times 100$ ).



**Fig. S5** Polarized microphotograph of the blue phase of EBBA doped with 4 mol% of (*R*)-**3** (75.5°C on cooling,  $\times 200$ ).