

Electronic Supplementary Information

ESI. 1 Analytical data for compounds **(S)-9**, **(R)-6**, **(R)-7**, **(R)-8**, **(R)-10**, **(R)-11** and **(R)-12**.

(S)-2,2'-Bis{6-[4-(2-(2-fluoro-4-butyloxyphenyl)pyrimidine-5-yl)phenoxy]nonoxy}-1,1'-binaphthyl, (S)-9

(S)-9 was prepared from *(S)*-2,2'-dihydroxy-1,1'-binaphthyl in a similar method to that described for **(R)-9**. ¹H NMR (270MHz, solvent CDCl₃, standard TMS) δ_H/ppm: 9.00(s, 4H, Ar-H), 8.12(t, 2H, Ar-H, J=8.9Hz), 7.91(d, 2H, Ar-H, J=8.9Hz), 7.83(d, 2H, Ar-H, J=8.1Hz), 7.54(d, 4H, Ar-H, J=8.5Hz), 7.39(d, 2H, Ar-H, J=8.9Hz), 7.32-7.16(m, 6H, Ar-H), 7.02(d, 4H, Ar-H, J=8.9Hz), 6.83-6.71(m, 4H, Ar-H), 4.03(t, 4H, Ar-OCH₂-, J=6.6Hz), 4.00-3.84(m, 4H, -CH₂O-), 4.00(t, 4H, Ar-OCH₂-, J=6.5Hz), 1.85-0.89(m, 42H, aliphatic-H); IR (KBr) ν_{max}/cm⁻¹: 2933, 2855, 1620, 1439, 1430, 1248; Purity: 100%. Elemental Analysis: Found: C, 77.32; H, 6.90; N, 4.65. Calc. for C₇₈H₈₄F₂N₄O₆: C, 77.26; H, 6.93; N, 4.62%.

(R)-2,2'-Bis{6-[4-(2-(2-fluoro-4-butyloxyphenyl)pyrimidine-5-yl)phenoxy]hexyloxy}-1,1'-binaphthyl, (R)-6

(R)-6 was prepared from *(R)*-2,2'-dihydroxy-1,1'-binaphthyl in a similar method to that described for **(R)-9**. ¹H NMR (270MHz, solvent CDCl₃, standard TMS) δ_H/ppm: 8.98(s, 4H, Ar-H), 8.10(t, 2H, Ar-H, J=8.9Hz), 7.90(d, 2H, Ar-H, J=8.9Hz), 7.83(d, 2H, Ar-H, J=8.1Hz), 7.53(d, 4H, Ar-H, J=8.9Hz), 7.40(d, 2H, Ar-H, J=8.9Hz), 7.32-7.13(m, 6H, Ar-H), 6.97(d, 4H, Ar-H, J=8.9Hz), 6.83-6.70(m, 4H, Ar-H), 4.02(t, 4H, Ar-OCH₂-, J=6.5Hz), 4.00-3.86(m, 4H, -CH₂O-), 3.80(t, 4H, Ar-OCH₂-, J=6.6Hz), 1.85-0.89(m, 30H, aliphatic-H); IR (KBr) ν_{max}/cm⁻¹: 2936, 2870, 1619, 1438, 1428, 1247; Purity: 100%. Elemental Analysis: Found: C, 76.75; H, 6.33; N, 5.07. Calc. for C₇₂H₇₂F₂N₄O₆: C, 76.64; H, 6.39; N, 4.97%.

(R)-2,2'-Bis{6-[4-(2-(2-fluoro-4-butyloxyphenyl)pyrimidine-5-yl)phenoxy]heptyloxy}-1,1'-binaphthyl, (R)-7

(R)-7 was prepared from *(R)*-2,2'-dihydroxy-1,1'-binaphthyl in a similar method to that described for **(R)-9**. ¹H NMR (270MHz, solvent CDCl₃, standard TMS) δ_H/ppm: 9.00(s,

4H, Ar-H), 8.12(t, 2H, Ar-H, J=8.9Hz), 7.91(d, 2H, Ar-H, J=8.9Hz), 7.83(d, 2H, Ar-H, J=7.8Hz), 7.54(d, 4H, Ar-H, J=8.9Hz), 7.40(d, 2H, Ar-H, J=8.9Hz), 7.32-7.13(m, 6H, Ar-H), 7.01(d, 4H, Ar-H, J=8.6Hz), 6.83-6.70(m, 4H, Ar-H), 4.03(t, 4H, Ar-OCH₂-, J=6.5Hz), 4.00-3.85(m, 4H, -CH₂O-), 3.91(t, 4H, Ar-OCH₂-, J=6.4Hz), 1.85-0.89(m, 34H, aliphatic-H); IR (KBr) $\nu_{\max}/\text{cm}^{-1}$: 2936, 2870, 1620, 1438, 1430, 1248; Purity: 100%. Elemental Analysis: Found: C, 76.76; H, 6.52; N, 4.89. Calc. for C₇₄H₇₆F₂N₄O₆: C, 76.85; H, 6.58; N, 4.85%.

(R)-2,2'-Bis{6-[4-(2-(2-fluoro-4-butyloxyphenyl)pyrimidine-5-yl)phenoxy]octyloxy}-1,1'-binaphthyl, (R)-8

(R)-8 was prepared from (R)-2,2'-dihydroxy-1,1'-binaphthyl in a similar method to that described for **(R)-9**. ¹H NMR (270MHz, solvent CDCl₃, standard TMS) $\delta_{\text{H}}/\text{ppm}$: 9.01(s, 4H, Ar-H), 8.12(t, 2H, Ar-H, J=8.9Hz), 7.91(d, 2H, Ar-H, J=8.9Hz), 7.83(d, 2H, Ar-H, J=8.1Hz), 7.54(d, 4H, Ar-H, J=8.5Hz), 7.40(d, 2H, Ar-H, J=8.9Hz), 7.32-7.10(m, 6H, Ar-H), 7.03(d, 4H, Ar-H, J=8.6Hz), 6.84-6.71(m, 4H, Ar-H), 4.03(t, 4H, Ar-OCH₂-, J=6.6Hz), 4.00-3.84(m, 4H, -CH₂O-), 4.00(t, 4H, Ar-OCH₂-, J=6.5Hz), 1.85-0.89(m, 38H, aliphatic-H); IR (KBr) $\nu_{\max}/\text{cm}^{-1}$: 2935, 2856, 1620, 1438, 1429, 1248; Purity: 100%. Elemental Analysis: Found: C, 77.14; H, 6.70; N, 4.82. Calc. for C₇₆H₈₀F₂N₄O₆: C, 77.06; H, 6.76; N, 4.73%.

(R)-2,2'-Bis{6-[4-(2-(2-fluoro-4-butyloxyphenyl)pyrimidine-5-yl)phenoxy]decyloxy}-1,1'-binaphthyl, (R)-10

(R)-10 was prepared from (R)-2,2'-dihydroxy-1,1'-binaphthyl in a similar method to that described for **(R)-9**. ¹H NMR (270MHz, solvent CDCl₃, standard TMS) $\delta_{\text{H}}/\text{ppm}$: 9.01(s, 4H, Ar-H), 8.13(t, 2H, Ar-H, J=8.8Hz), 7.91(d, 2H, Ar-H, J=9.4Hz), 7.83(d, 2H, Ar-H, J=8.1Hz), 7.54(d, 4H, Ar-H, J=8.4Hz), 7.40(d, 2H, Ar-H, J=8.9Hz), 7.31-7.15(m, 6H, Ar-H), 7.04(d, 4H, Ar-H, J=8.6Hz), 6.86-6.71(m, 4H, Ar-H), 4.03(t, 4H, Ar-OCH₂-, J=6.5Hz), 4.00-3.86(m, 4H, -CH₂O-), 4.01(t, 4H, Ar-OCH₂-, J=6.5Hz), 1.85-0.89(m, 46H, aliphatic-H); IR (KBr) $\nu_{\max}/\text{cm}^{-1}$: 2931, 2854, 1620, 1438, 1429, 1247; Purity: 100%. Elemental Analysis: Found: C, 77.78; H, 7.10; N, 4.47. Calc. for C₈₀H₈₈F₂N₄O₆: C, 77.45; H, 7.10; N, 4.52%.

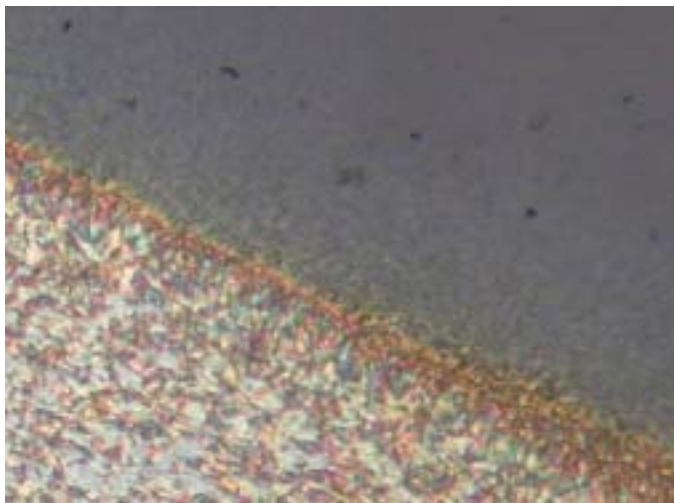
(R)-2,2'-Bis{6-[4-(2-(2-fluoro-4-butyloxyphenyl)pyrimidine-5-yl)phenoxy]undecyloxy}-1,1'-binaphthyl, (R)-11

(R)-11 was prepared from (R)-2,2'-dihydroxy-1,1'-binaphthyl in a similar method to that described for (R)-9. ¹H NMR (270MHz, solvent CDCl₃, standard TMS) δ_H/ppm: 9.01(s, 4H, Ar-H), 8.13(t, 2H, Ar-H, J=8.9Hz), 7.90(d, 2H, Ar-H, J=8.9Hz), 7.83(d, 2H, Ar-H, J=7.8Hz), 7.54(d, 4H, Ar-H, J=8.9Hz), 7.39(d, 2H, Ar-H, J=8.9Hz), 7.31-7.15(m, 6H, Ar-H), 7.03(d, 4H, Ar-H, J=8.9Hz), 6.84-6.71(m, 4H, Ar-H), 4.03(t, 4H, Ar-OCH₂-, J=6.5Hz), 4.00-3.86(m, 4H, -CH₂O-), 4.01(t, 4H, Ar-OCH₂-, J=6.6Hz), 1.85-0.89(m, 50H, aliphatic-H); IR (KBr) ν_{max}/cm⁻¹: 2926, 2853, 1620, 1439, 1429, 1247; Purity: 100% Elemental Analysis: Found: C, 77.63; H, 7.24; N, 4.47. Calc. for C₈₂H₉₂F₂N₄O₆: C, 77.63; H, 7.25; N, 4.42%

(R)-2,2'-Bis{6-[4-(2-(2-fluoro-4-butyloxyphenyl)pyrimidine-5-yl)phenoxy]dodecyloxy}-1,1'-binaphthyl, (R)-12

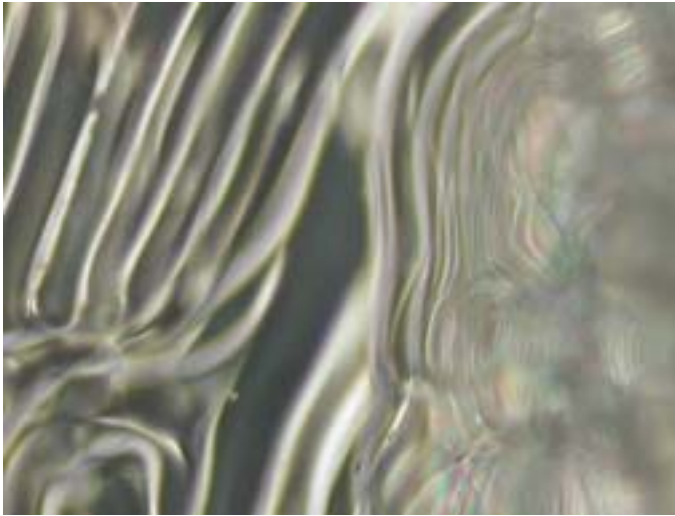
(R)-12 was prepared from (R)-2,2'-dihydroxy-1,1'-binaphthyl in a similar method to that described for (R)-9. ¹H NMR (270MHz, solvent CDCl₃, standard TMS) δ_H/ppm: 9.02(s, 4H, Ar-H), 8.13(t, 2H, Ar-H, J=8.9Hz), 7.90(d, 2H, Ar-H, J=9.2Hz), 7.83(d, 2H, Ar-H, J=8.1Hz), 7.53(d, 4H, Ar-H, J=8.9Hz), 7.39(d, 2H, Ar-H, J=8.9Hz), 7.31-7.15(m, 6H, Ar-H), 7.03(d, 4H, Ar-H, J=8.9Hz), 6.84-6.71(m, 4H, Ar-H), 4.03(t, 4H, Ar-OCH₂-, J=6.5Hz), 4.00-3.86(m, 4H, -CH₂O-), 4.02(t, 4H, Ar-OCH₂-, J=6.6Hz), 1.85-0.89(m, 54H, aliphatic-H); IR(KBr) ν_{max}/cm⁻¹: 2924, 2852, 1620, 1439, 1429, 1247; Purity:100%. Elemental Analysis: Found: C, 77.66; H, 7.29; N, 4.59. Calc. for C₈₄H₉₆F₂N₄O₆: C, 77.80; H, 7.41; N, 4.32%.

(R)-9



(R)-10

ESI. 2 Photomicrograph of a contact region between compounds **(R)-9** and **(R)-10** at 118.5 °C.



(R)-9

(R)-10

ESI. 3 Photomicrograph of a contact region between mixtures of achiral host material, 5-octyl-2-(4-hexyloxyphenyl)pyrimidine, and 5 wt% of each chiral compound, i.e. compound **(R)-9** (left-hand side) and compound **(R)-10** (right-hand side) at 63.5 °C in the N* phase.