Supporting information

Highly Ordered Defect Arrays of 8CB (4'-n-octyl-4-cyano-biphenyl) Liquid Crystal via Template-Assisted Self-Assembly

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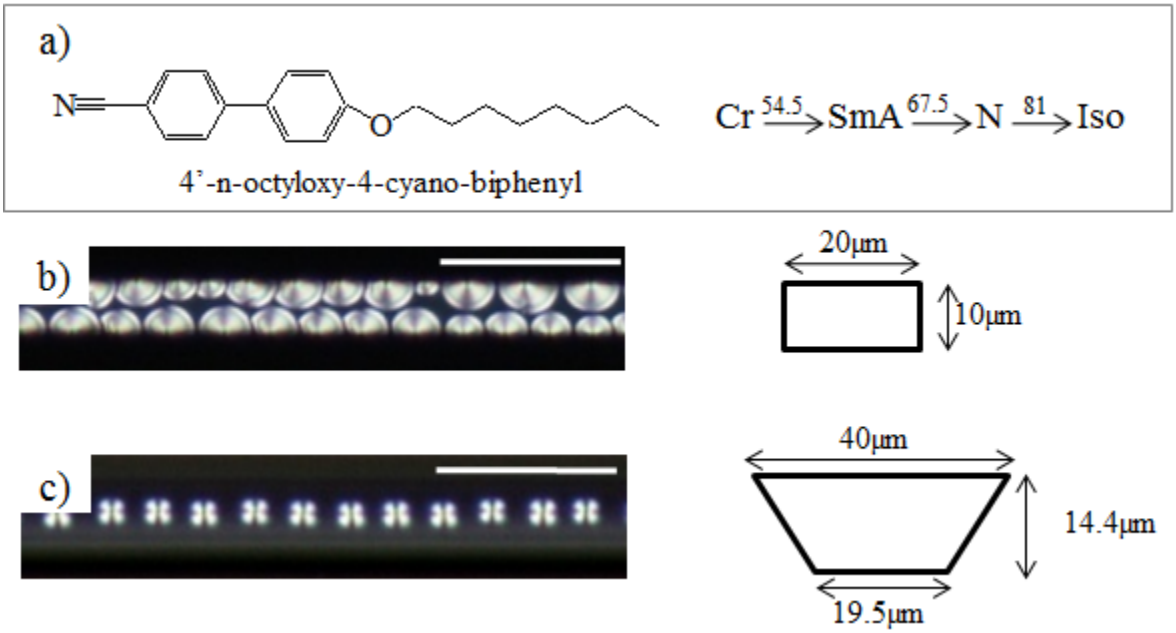


Fig. S1. a) The molecular structure and phase transition temperature of 4'-n-octyloxy-4-cyano-biphenyl (8OCB). b) POM images of 8OCB in a PEI coated rectangular microchannel with width = 20μm and depth = 10μm. c) POM image of 8OCB in a PEI coated trapezoidal microchannels with top-width = 40μm, bottom-width = 19.5μm and depth = 14.4μm (Scale: 50μm).

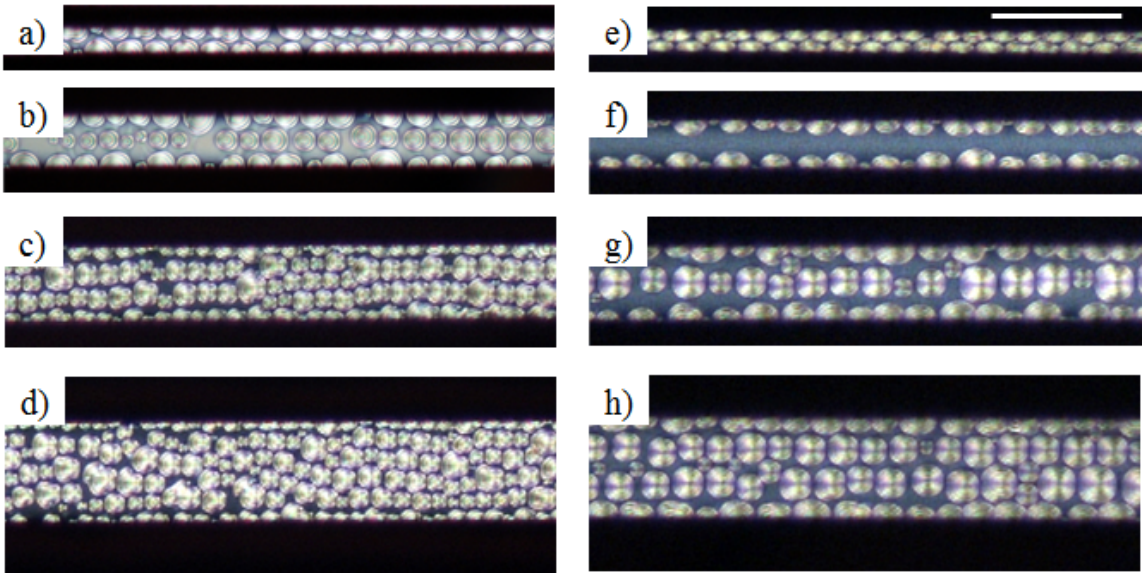
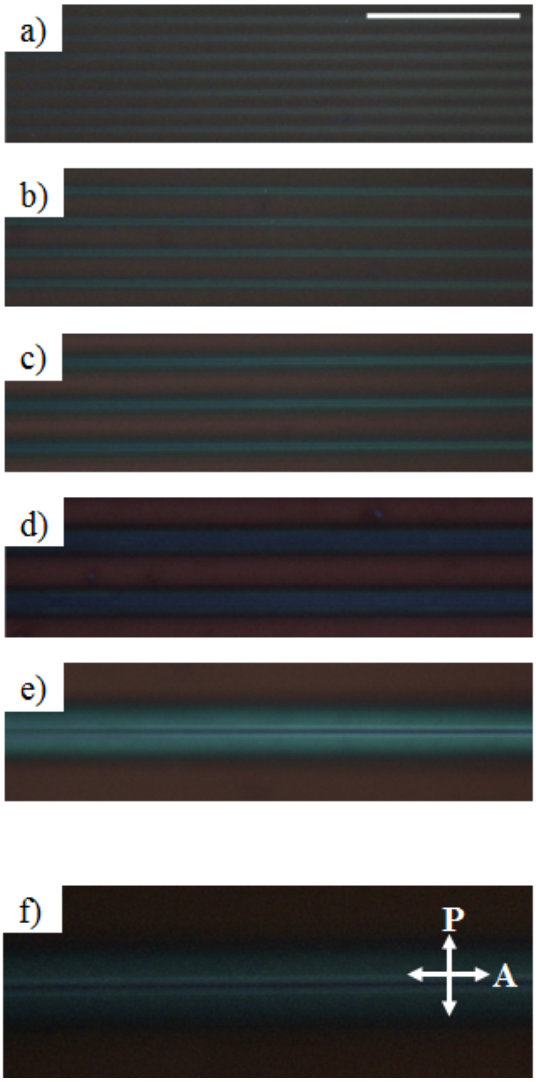
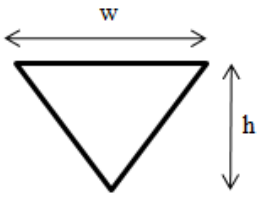


Fig. S2. POM images of 8CB in rectangular shaped channels of different widths and depths. a-d) width = 10 - 40µm (from top to bottom) and fixed depth = 5µm. e-h) width = 10 - 40µm (from top to bottom) and fixed depth = 10µm (Scale: 50 µm).





	w (μm)	h (μm)
a	3	1.8
b	5	3.5
c	7	5
d	10	7.3
e	20	14.4

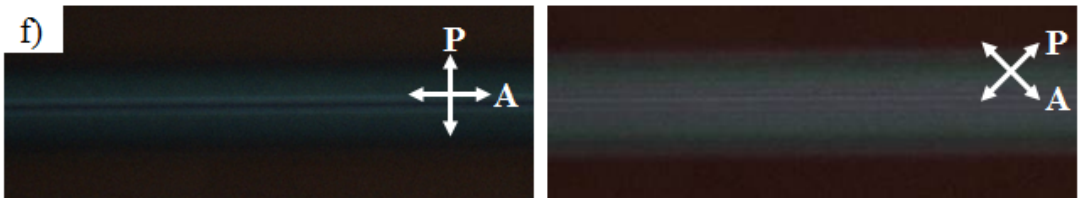
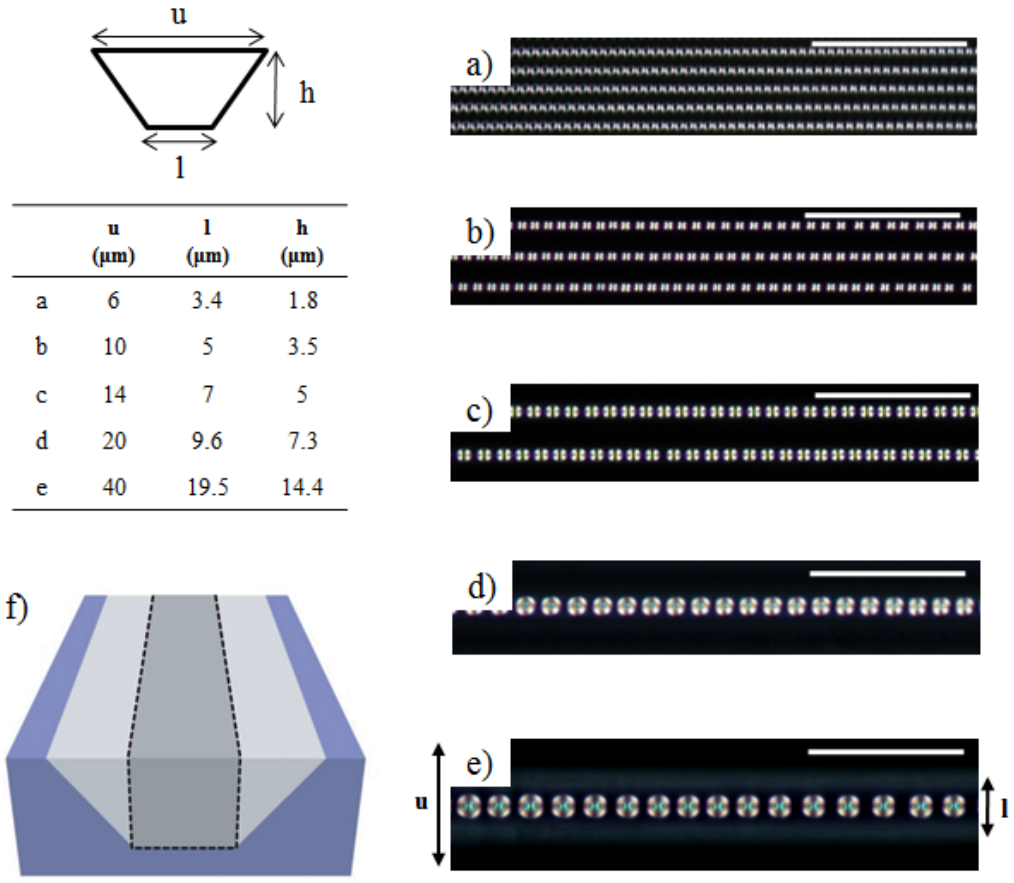


Fig. S3. a-e) POM images of **8CB** in V-shaped channels of different w = 3 - 20μm and h = 1.8-14.4μm (Scale: 50μm). f) POM images taken by rotating the samples at 0° and 45°.



	u (μm)	l (μm)	h (μm)
a	6	3.4	1.8
b	10	5	3.5
c	14	7	5
d	20	9.6	7.3
e	40	19.5	14.4

Fig. S4. a-e) POM textures of **8CB** in trapezoidal microchannels of different u, l and h of channel. The detail information of trapezoidal channels is shown in Table. (Scales: 50μm). The average radius $\langle a \rangle$ of TFCDs was $\langle a \rangle = (1.63 \pm 0.07)$ μm in channel (a), $\langle a \rangle = (2.29 \pm 0.13)$ μm in channel (b), $\langle a \rangle = (2.96 \pm 0.05)$ μm in channel (c), $\langle a \rangle = (3.8 \pm 0.18)$ μm in channel (d), $\langle a \rangle = (5.2 \pm 0.16)$ μm in channel (e). f) Illustrations of the effective volume in trapezoidal channel influencing to form TFCD.