Electronic Supplementary Material (ESI) for RSC Advances.
This journal is © The Royal Society of Chemistry 2014

Supporting Information for:

Creation of a Superhydrophobic Surface from a Sublimed Smectic Liquid Crystal

Dae Seok Kim,[a] Yun Jeong Cha,[a] Hanim Kim,[a] Mun Ho Kim,[b] Yun Ho Kim,[c] Dong Ki Yoon*[a]

a Graduate School of Nanoscience and Technology and Center for Nature-inspired Technology in KAIST Institute for the NanoCentury, KAIST, Daejeon, 305-701, Republic of Korea. Fax: +82 42 350 1110; Tel: +82 42 350 1116;

E-mail: nandk@kaist.ac.kr

b Reliability Assessment Center for Chemical Materials, Korea Research Institute of Chemical Technology, Daejeon 305-600, Republic of Korea.

c Advanced Functional Materials Research Group, Korea Research Institute of Chemical Technology, Daejeon 305-600, Republic of Korea

.

ESI, Figure S1§

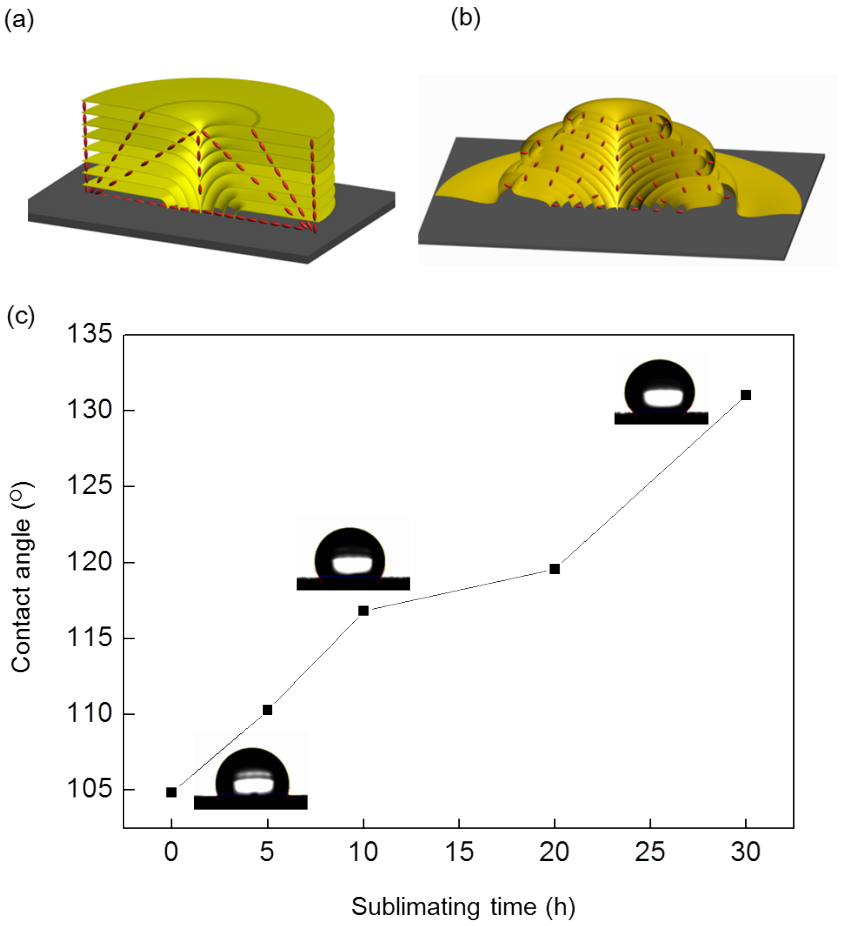

Fig. S1 (a, b) The schematic illustrations of single TFCD and its sublimed TFCD. (c) CA measuremen ts of water droplets on sublimed TFCD arrays on a flat Si substrate as a function of sublimating time.

ESI, Figure S2§

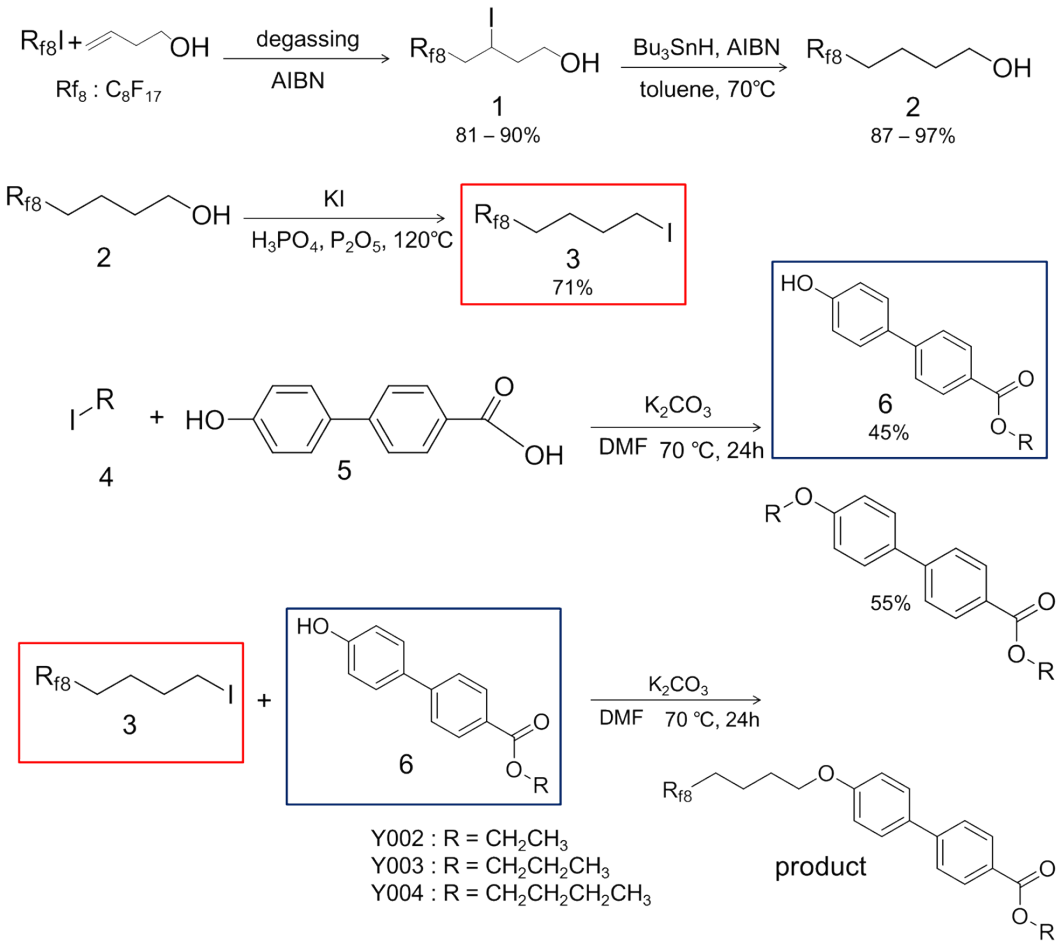

Fig. S2 Semi-fluorinated liquid crystalline materials **Y002**, **Y003**, and **Y004** were synthesized by the procedure used for the alkylation of ethyl, propyl, and butyl 4'-hydroxy-4-biphenyl carboxylate with 1 H,1H,2H,2H,3H,3H,4H,4H-perfluorododecyl iodide in DMF at 70°C under reflux with K_2CO_3.[15]

ESI, Figure S3§

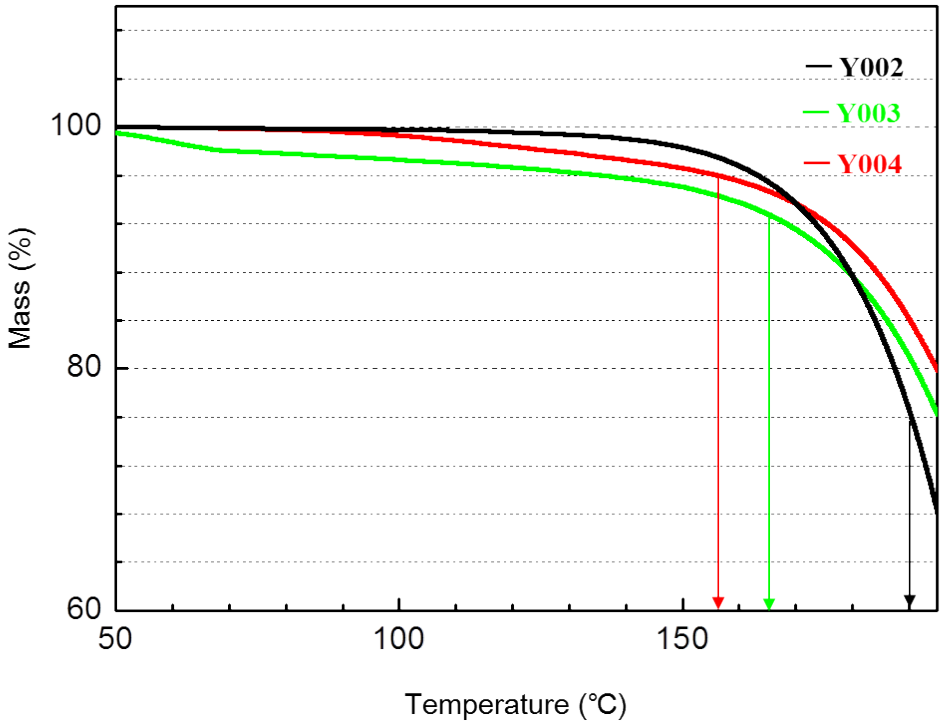

Fig. S3 Thermogravimetric (TGA) results of **Y002**, **Y003**, and **Y004** during cooling (cooling rate:1°C min^{-1}) shows that sublimation occurred before the material reached their respective isotropic temperat ures. The arrows indicate the respective isotropic temperature of each material.

ESI, Figure S4§

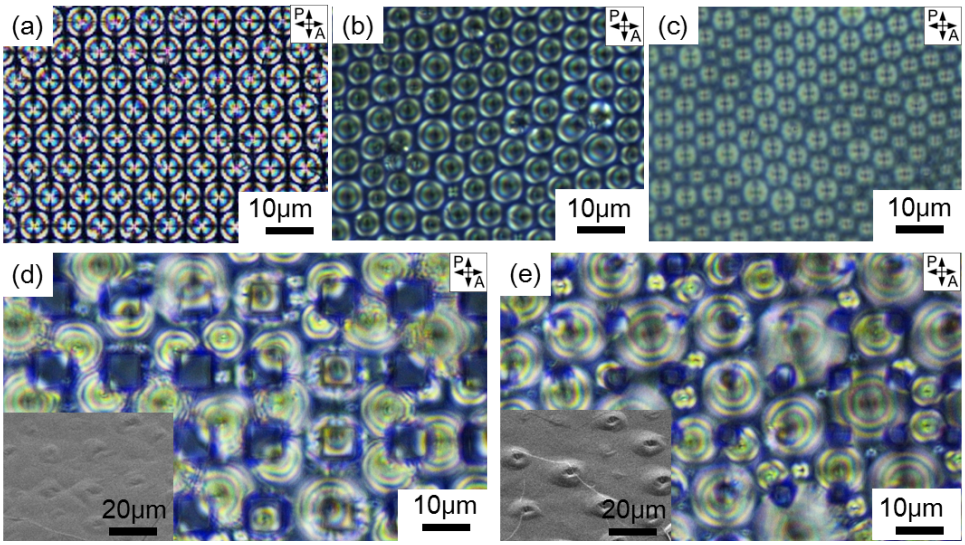

Fig. S4 DRLM images of: (a-c) normal TFCDs of **Y002**-**Y004** on planar anchoring substrates. (d-e) e pitaxial-assembled TFCDs of **Y002** on square-pillar arrays with l = 10 μm and l = 5 μm, respectively. Insets of (d, e) are corresponding SEM micrographs.

ESI, Figure S5§

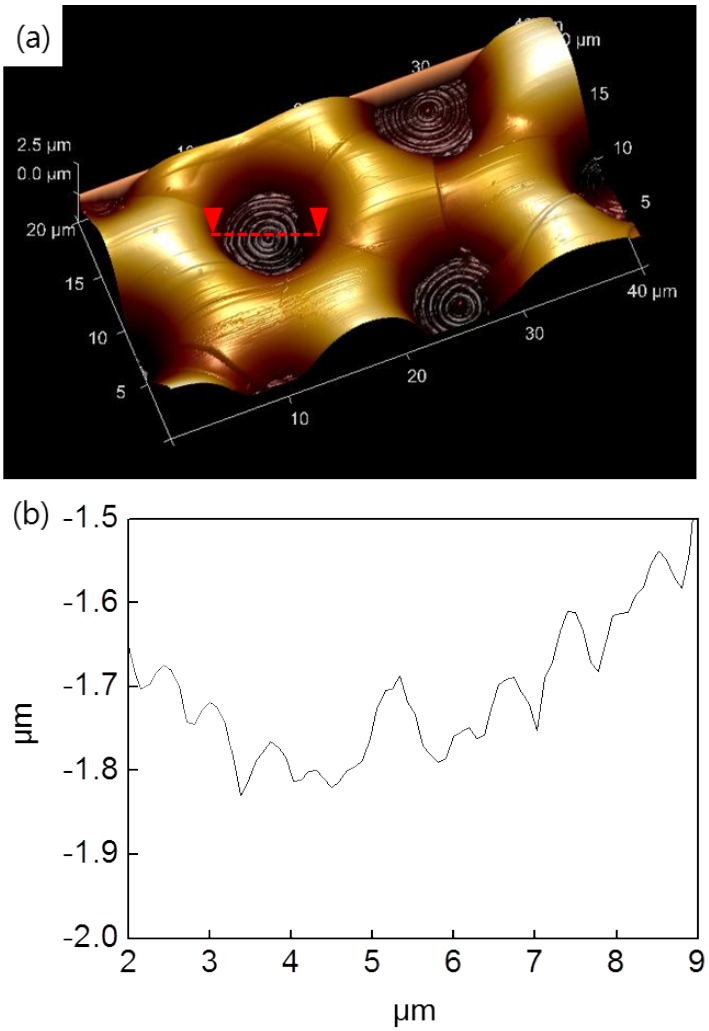

Fig. S5 (a-b) AFM image and height profile of circular hemi-cylinders in single TFCD on a flat Si sub strate.

ESI, Figure S6§

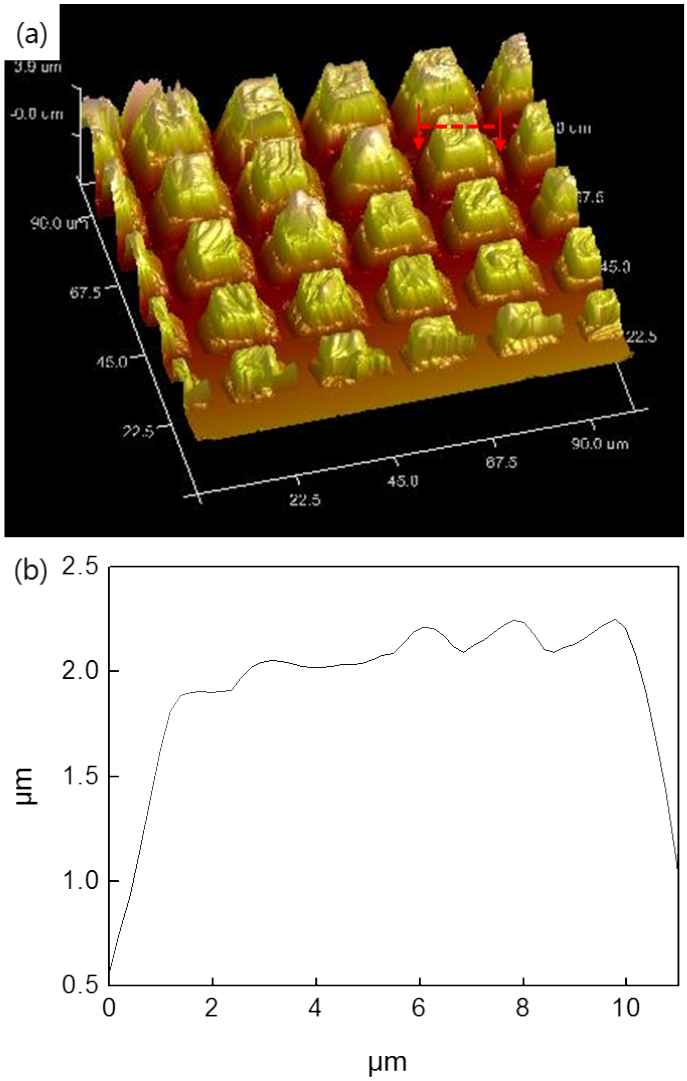

Fig. S6 (a-b) AFM images and height profile of hemi-cylinders with TFCDs on pillar arrays (l =10 μ m).

ESI, Figure S7§

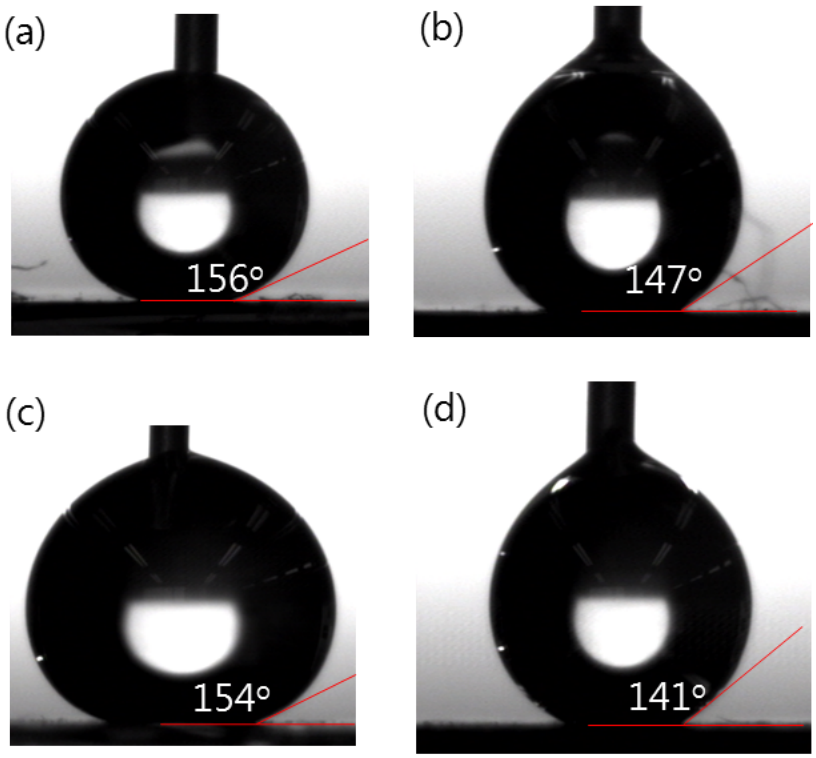

Fig. S7 CA hysteresis. The advancing angle and receding angle of a water droplet on the sublimed TF CDs on pillar patterns. (a, b) for l = 10 μm and (c, d) for l = 5 μm.

ESI, Figure S8§

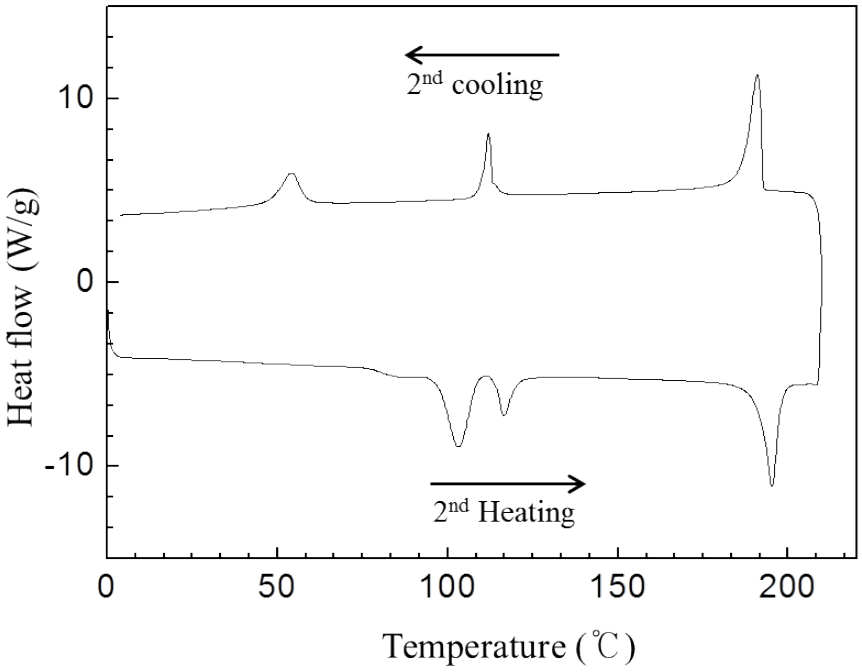

Fig. S8 DSC thermograms for 2nd heating and 2nd cooling cycles for **Y002**. The temperature scan rate was 10℃/min and N_2 purged into the sample chamber (50mL/min).