Supporting Information for:

Creation of liquid-crystal periodic zigzags by surface treatment and thermal annealing

Seong Ho Ryu,^a Min-Jun Gim,^a Yun Jeong Cha,^a Tae Joo Shin,^b Hyungju Ahn,^c Dong Ki Yoon^{*a}

^aGraduate School of Nanoscience and Technology and KINC, KAIST, Daejeon, 305-701, Republic of

Korea

^bUNIST Central Research Facilities & School of Natural Science, UNIST, Ulsan, 689-789, Republic of

Korea

^cPohang Accelerator Laboratory, POSTECH, Pohang, 790-784, Republic of Korea

*Corresponding author Email: nandk@kaist.ac.kr



Fig. S1 DRLM images of the zigzag structures as increasing sample thickness. The scale bar is 20 µm.



Fig. S2 DRLM images of the zigzag structure as rotating crossed polarizers at (a) 0°, (b) 20°, and (c) 45°.

The scale bar is 10 $\mu m.$

Figure S3



Fig. S3 The fluorescent intensities in LSFCM images at (a and b) $z = 0 \mu m$ and (c and d) $z = 8 \mu m$. The scale bar is 10 μm .

<u>Figure S4</u>



Fig. S4 The AFM phase image of the zigzag structure. The blue box is the same area shown in the Figure 4(a). The scale bare is 10 μ m.

<u>Figure S5</u>



Fig. S5 Structural transition behaviour of the zigzag disclination lines upon cooling from N-SmA transition to SmA phase. The scale bare is $50 \ \mu m$.



Fig. S6 A AFM study of the rubbed PI-coated Si substrate. (a) The AFM topographic image of the rubbed PI-coated Si substrate and (b) its height profile. The scale bare is $2 \mu m$.