

Supplementary Information

Microstructure arrays of DNA using topographic control

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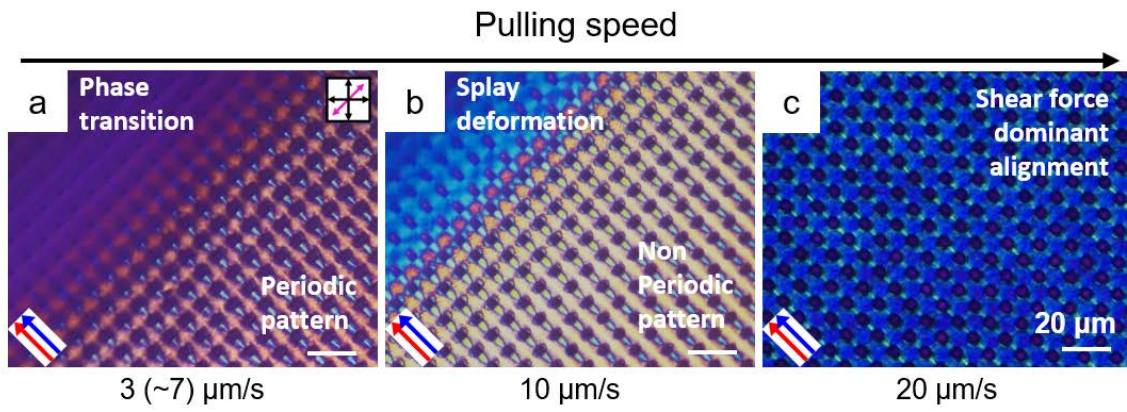
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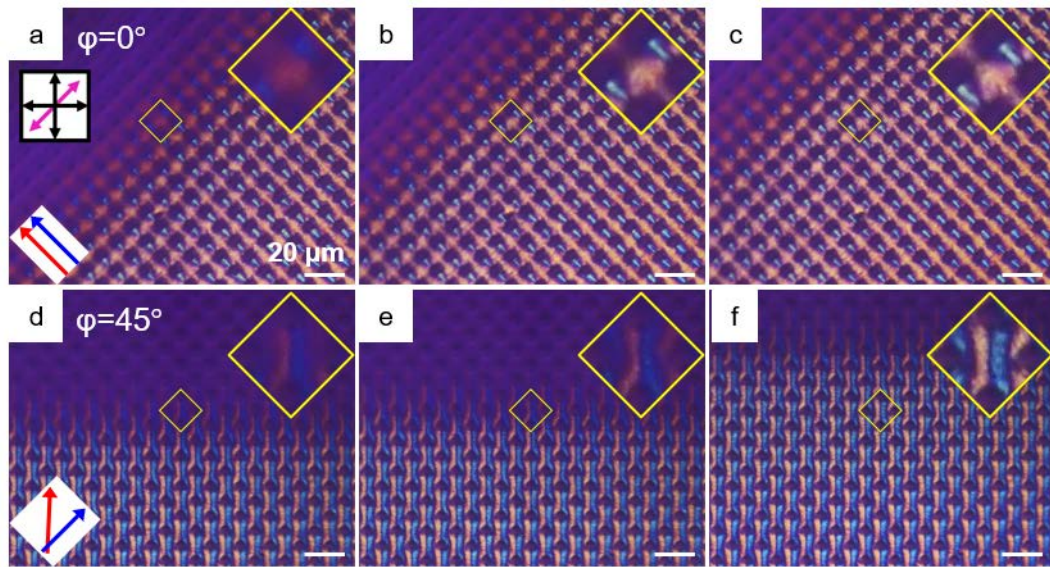
2 **Supplementary Figure 1.** DNA microstructure-generation depending on the pulling speed,

3 (a) 3~7 $\mu\text{m/s}$. (b) 10 $\mu\text{m/s}$, and (c) 20 $\mu\text{m/s}$. All scales are 20 μm .

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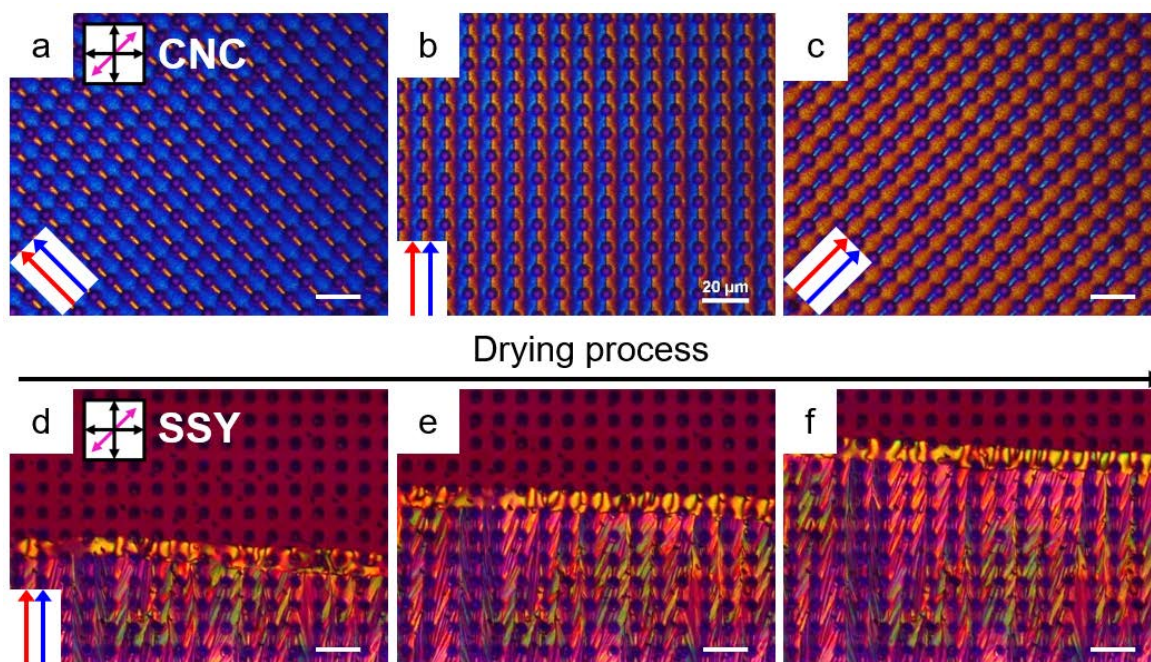
4 **Supplementary Figure 2.** Sequential growth of DNA microstructure at $\phi = 0^\circ$ (a-c), $\phi = 45^\circ$

5 (d-f) rotated $\pm 45^\circ$ based on the original position. All scales are 20 μm .

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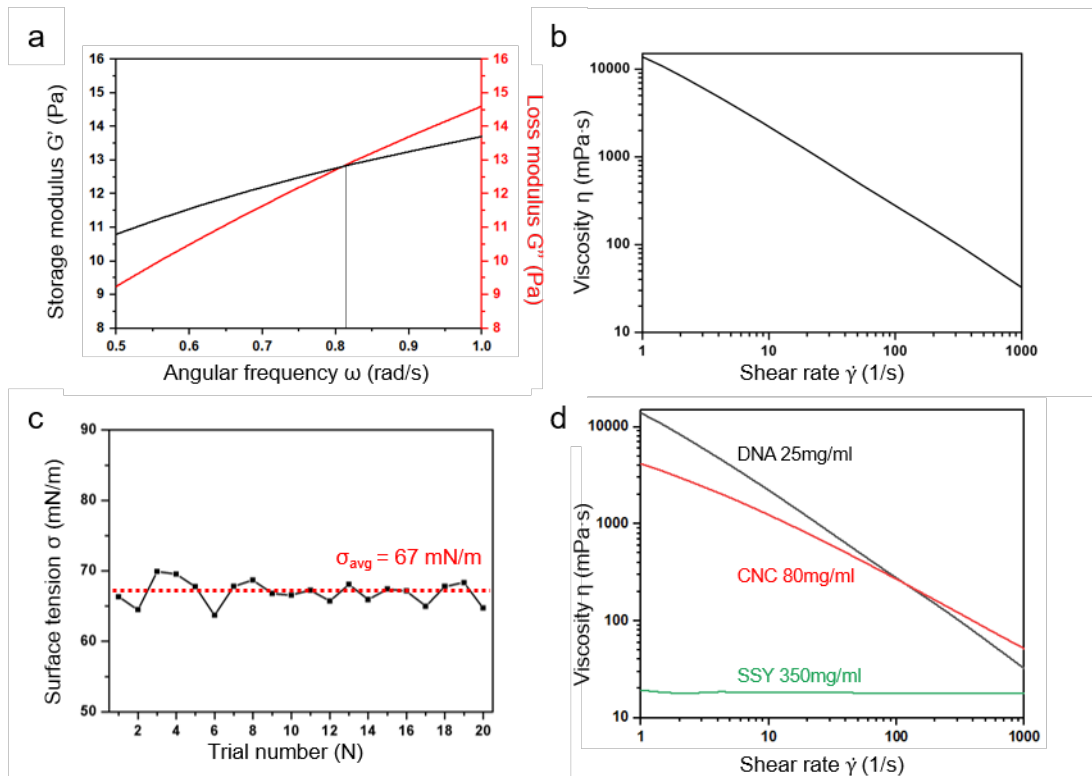
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3 **Supplementary Figure 3.** Fabricated cellulose nanocrystal (CNC) microstructures using a
4 concentration of 80 mg/ml at (b) $\varphi = 0^\circ$ and by (a,c) rotating sample $\pm 45^\circ$; (d-f) Drying
5 process of sunset yellow (SSY) solution using a concentration of 350 mg/ml at $\varphi = 0^\circ$ does
6 not show the similar behavior with DNA's case. All scales are 20 μm .

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2 **Supplementary Figure 4.** (a) Rheometer measurement of storage (G') and loss modulus
3 (G''), (b) shear rate-viscosity curve and (c) surface tension of 25 mg/ml DNA solution. (d)
4 Comparison of shear-viscosity curves for DNA, CNC, and SSY. The results present that CNC
5 and DNA show a shear-thinning behavior while SSY shows a Newtonian behaviour.

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Material	Persistence length (λ_p)	Contour length (L)	Diameter (D)	Aspect ratio (L/D) & (λ_p/D)	Flexibility (λ_p/L)
Salmon sperm DNA (DNA)	50nm	680nm	2nm	340(25)	Semiflexible
Sunset Yellow FCF (SSY)	10nm	≥ 10 nm	1nm	≥ 10 (10)	Semiflexible
Cellulose nanocrystal (CNC)	150nm	300nm	10nm	30(15)	Semiflexible

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2 **Supplementary Table 1.** Molecular scale properties of salmon sperm DNA (DNA), sunset

3 yellow FCF (SSY), and cellulose nanocrystal (CNC).

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