

**Simple One-Step Growth and Parallel Alignment of DNA Nanofibers via Solvent Vapor-Induced
Buildup**

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ELECTRONIC SUPPLEMENTARY INFORMATION

Materials.

All chemicals used were of reagent grade. To prepare the DNA solution, λ -phage DNA (Wako Nippon Gene, 450 ng/ μ L in 10 mM Tris·HCl/ 1 mM EDTA, pH 8) was diluted in a buffer solution (1 mM Tris·HCl/ 10 mM EDTA/ 10 mM NaCl, pH 8) to 4.5 ng/ μ L and stained with YOYO-1 (absorption max: 491nm, emission max: 503 nm, Molecular Probe Inc.) or POPO-3 (absorption max: 534 nm, emission max: 570 nm, Molecular Probe Inc.) at a dye/base-pair ratio of 1:5. Incubation was conducted in the dark at room temperature for 1 h.

PDMS sheet was prepared by funneling the liquid prepolymer (the mixture of oligomer (SILPOT 184, Dow Corning) and initiator (CATALYST SILPOT 184, Dow Corning) in a 10:1 ratio as recommended by Dow Corning) into the petri dish. After curing PDMS sheet was cut into appropriate sizes (2×8 mm, 0.5 mm thick).

Coverslips (24×36 mm, Matsunami Glass) were sonicated for 60 min in ethanol (99.5%), rinsed in distilled water, and then dried with N₂ flow.

AFM Measurements.

AFM measurements were performed using a Nanowizard II (JPK Instruments). The set-point voltage was adjusted to the lowest value so as not to damage samples. We used a tapping mode and a standard silicon nitride probe with a 42 N/m spring constant (Model OMCL-AC160TS, Olympus Optical). The scanning rate was usually 0.5 Hz.

Fluorescent microscope imaging.

Fluorescent micrographs of DNA nanofibers were taken by a fluorescent microscope (ECLIPSE 80i, NIKON) equipped with digital camera (Power Shot A640, NIKON). A blue excitation filter set (EX: 450-490 nm, DM: 505 nm, BA: 520nm, NIKON) was used for imaging YOYO-1. A green excitation filter set (EX: 510-560 nm, DM: 575 nm, BA: 590 nm, NIKON) was used for imaging POPO-3.

Transfer printing of DNA nanofibers.

To transfer the prepared DNA nanofibers onto a coverslip, the PDMS sheet with nanofibers was brought into contact with the surface for 5 min without external pressure and then peeled away. The coverslip was moisturized with ethanol to enhance transfer efficiency. To make 2D patterns, a second contact printing was performed on the same printed arrays.