

# Supporting Information

## **Rapid prototyping of open-surface microfluidic platform using wettability-patterned surfaces prepared by atmospheric-pressure plasma jet**

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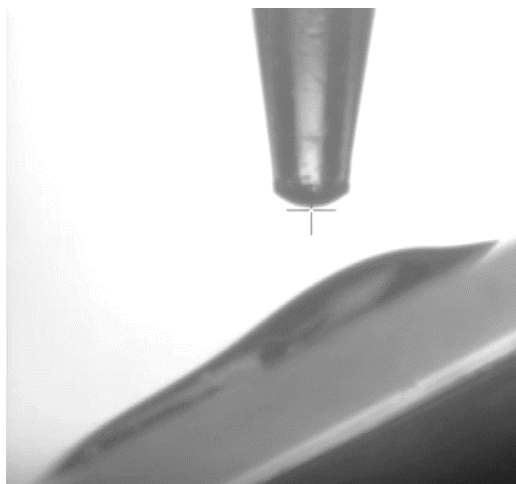
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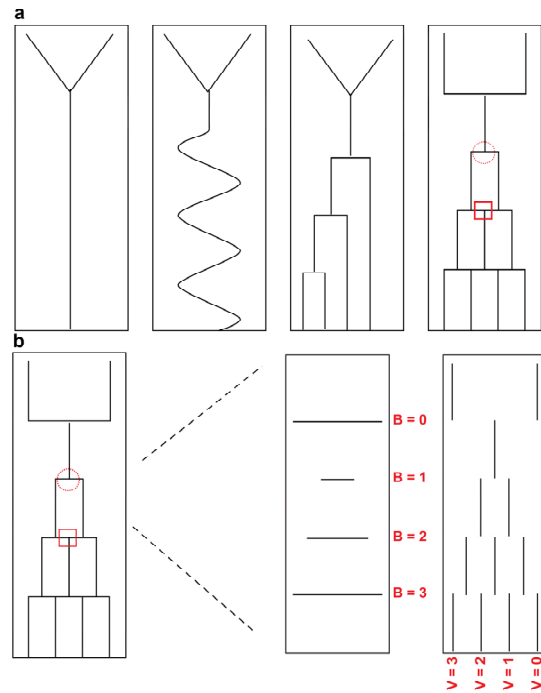
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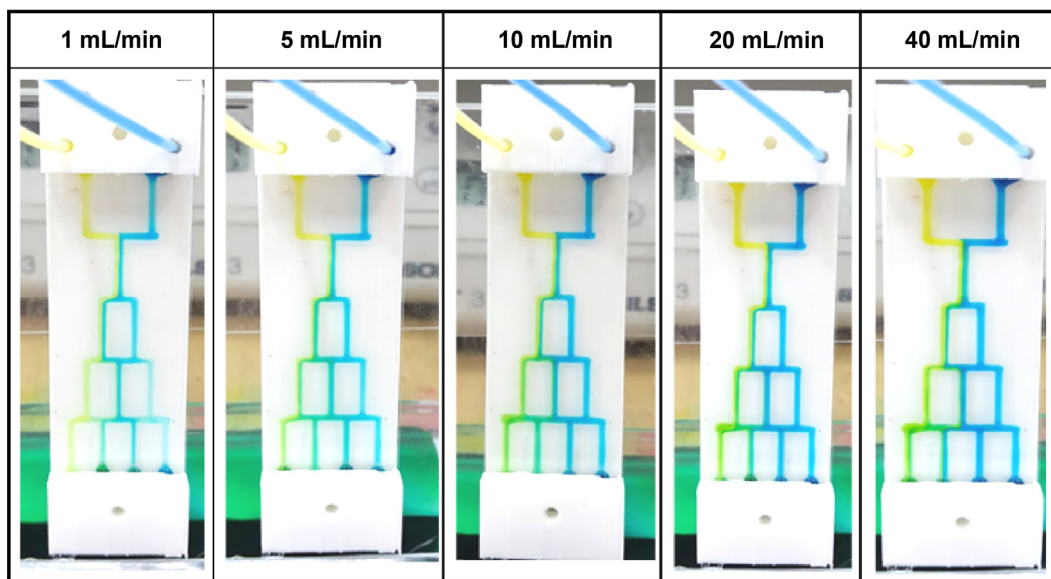
\*E-mail: cshsu@mail.nctu.edu.tw (CS Hsu)



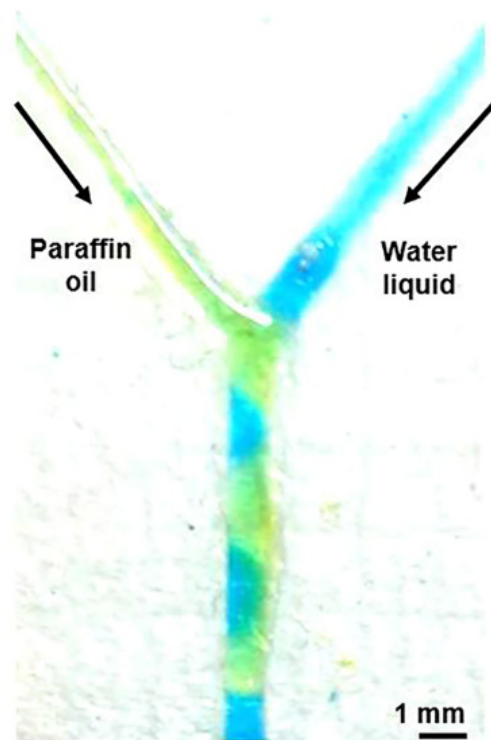
**Figure S1** Sliding of 5 $\mu$ L water droplets against the HMDSO- and AAC- modified wettability-patterned surface tilted at 30°.



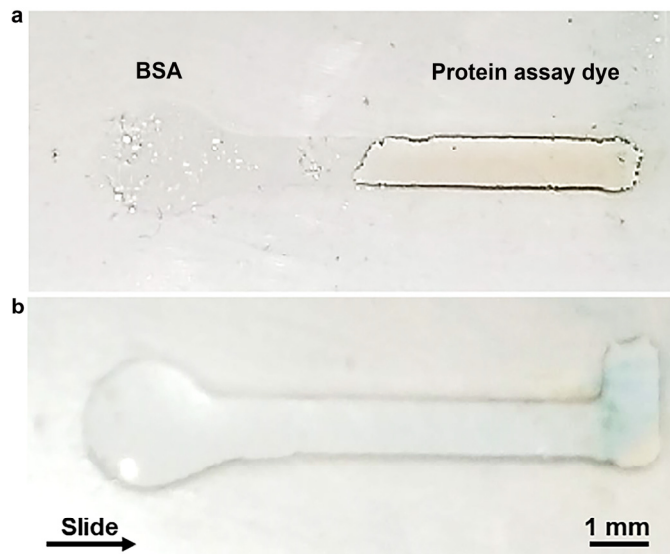
**Figure S2** Design of first and second masks (a) Y junction channels, serpentine-shaped channels, concentration gradient generator without merging channels, and concentration gradient generator with merging channels (b) Merging channels with two parts of masks : branch-cut-shaped mask with a four-branch order within the branched system (We denoted each channel as B=0, B=1, B=2, and B=3) and vertical-shaped mask of the concentration profiles within the branched system (We denoted each channel as V=0, V=1, V=2, and V=3).



**Figure S3** Grading channels with different flow rates for a tilt angle of  $70^\circ$ .



**Figure S4** Oil wettability test using Y junction channel for a tilt angle of 30°.



**Figure S5** Mixing test (diffusion): (a) Using separate regions coated with BSA and protein assay dye. The gap between the regions is 2 mm. (b) Mixing test (diffusion) for a tilt angle of  $30^\circ$ .