Lab on a Chip
Supplementary Information

The Microfluidic Puzzle: Chip-oriented Rapid Prototyping

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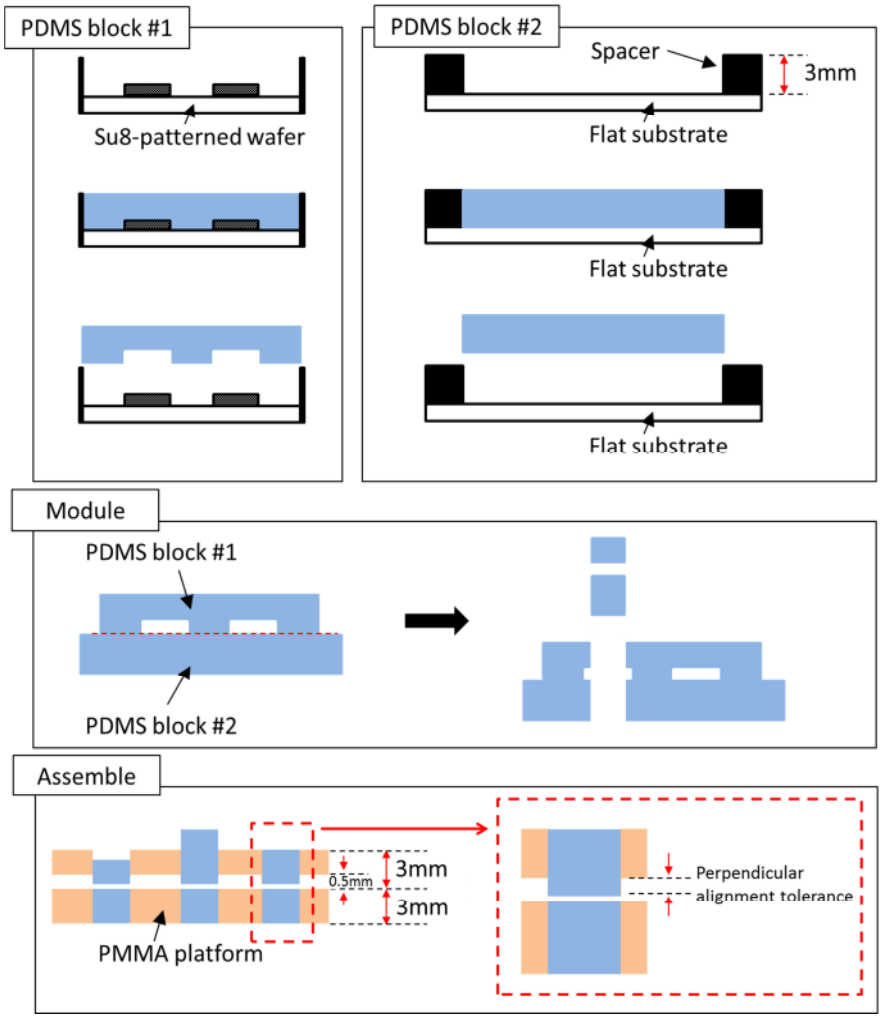
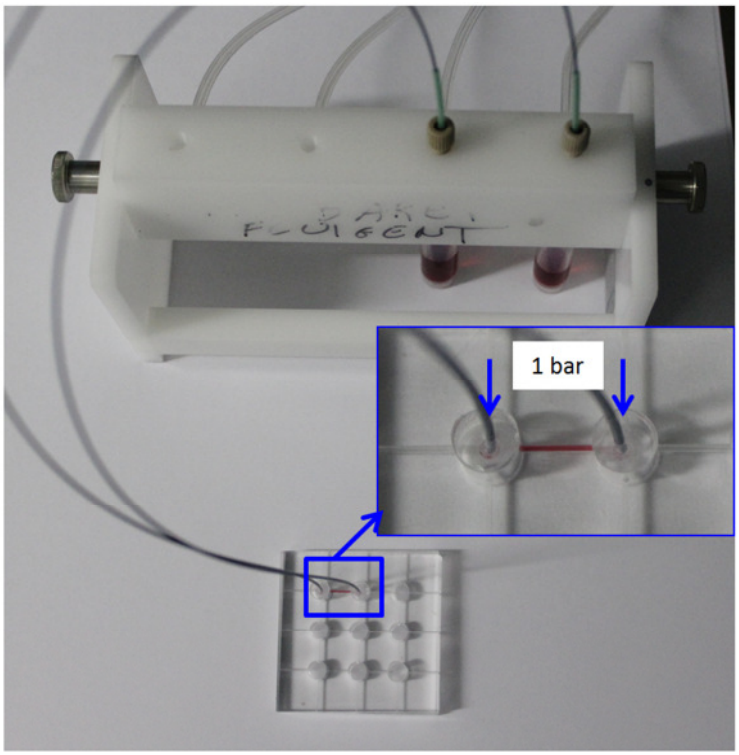
Supplementary figure 1: Schematic diagram of fabrication process of the modules in a cross sectional view. The spacer used for making PDMS block #2 was prepared from the same PMMA plate used for the PMMA cover plate for the scaffold. After making the modules, we plugged them into the scaffold to the end of the slots as shown in the figure 'assemble'. The perpendicular tolerance was secured as much as the channel height difference between the modules and the scaffold.



Supplementary figure 2: we performed an experiment to analyze the leakage pressure. We plugged two in/out-let modules to make a simple closed microchannel structure. A pressure driven pump (MFCS-8C-1000, Fluigent) which has maximum output pressure value of 1 bar was used for quantifying the applied pressure. The reservoirs were filled with red food dye, and it was introduced to the assembled device. After filling whole system with the fluid, we applied 1 bar from the both reservoir. The leakage was not observed as show in the figure.



Supplementary Movies:

Supplementary movie 01:

Movie of droplet producing with the T-junction module with nozzle size of 40μm.

Supplementary movie 02:

Movie of droplet producing with the T-junction module with nozzle size of 60μm.

Supplementary movie 03:

Movie of droplet producing with the T-junction module with nozzle size of 100μm.

Supplementary movie 04:

Movie of droplet producing and collecting in the platform.

Supplementary Autocad file:

The design for the modules. (The file was saved as Autocad 2013 dwg format.)