Electronic Supplementary Material (ESI) for Analyst.

Supporting Information for Analyst

A smart multi-pipette for hand-held operation of microfluidic devices

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I. Supporting Figures

FIG. S1. A photograph of smart multi-pipettes with two and four liquid-holding nozzles. The four-nozzle smart pipette is composed of four 200-μL pipette tips and can deliver four different fluids into a microfluidic device. Customized nozzles with narrow ends can be further integrated to increase the number of the nozzles.

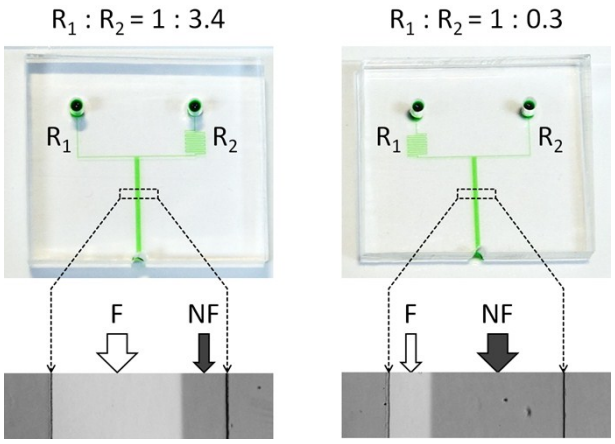

FIG. S2. Adjustment of the ratio between the stream widths of fluorescent and non-fluorescent fluids by changing the ratio between the hydrodynamic resistances of the inlet channels. F and NF denote fluorescent and non-fluorescent streams, respectively.

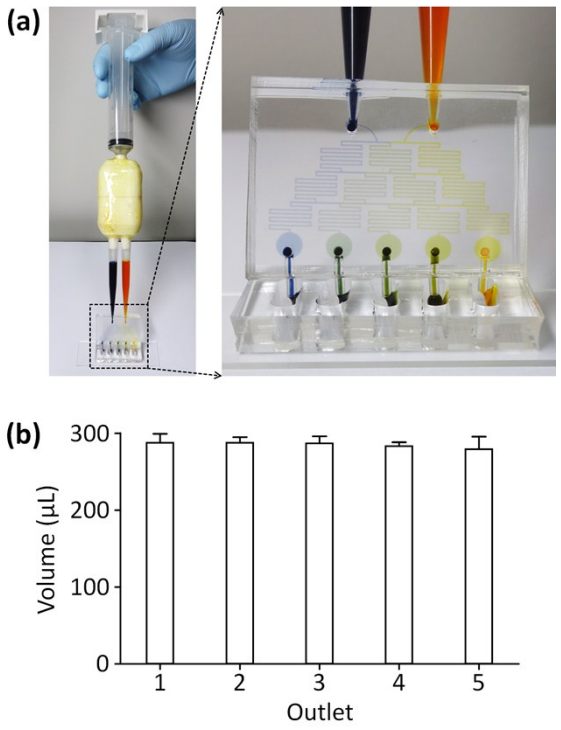

FIG. S3. (a) A photograph showing the transfer of generated water droplets from the gradient generator to PDMS wells. (b) The volumes of the water droplets hanging at the end of each outlet tubing can be different due to irregular break-up of the droplets. However, the total water volumes collected in PDMS wells were highly uniform with a coefficient of variation of 3.4%. The water droplets were collected during 10 minutes of smart pipetting at V_1 = 30 mL.