

Supplementary Information

An optofluidic imaging to measure the biophysical signature of single waterborne bacterium

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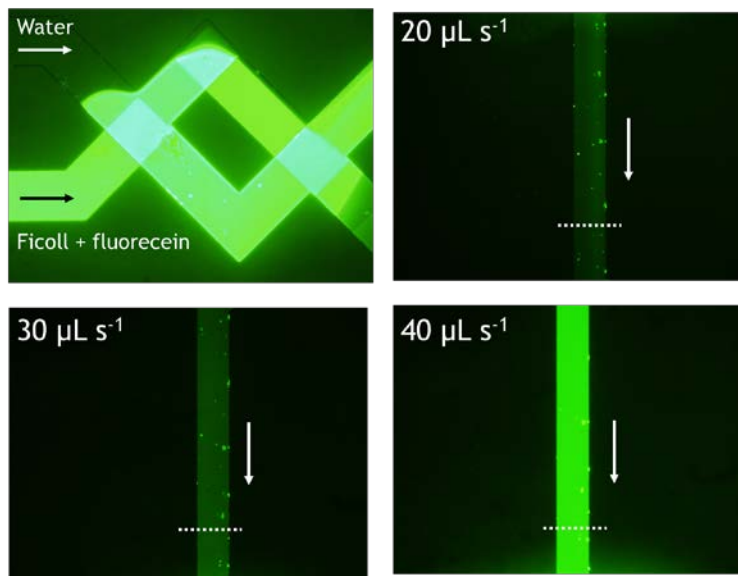
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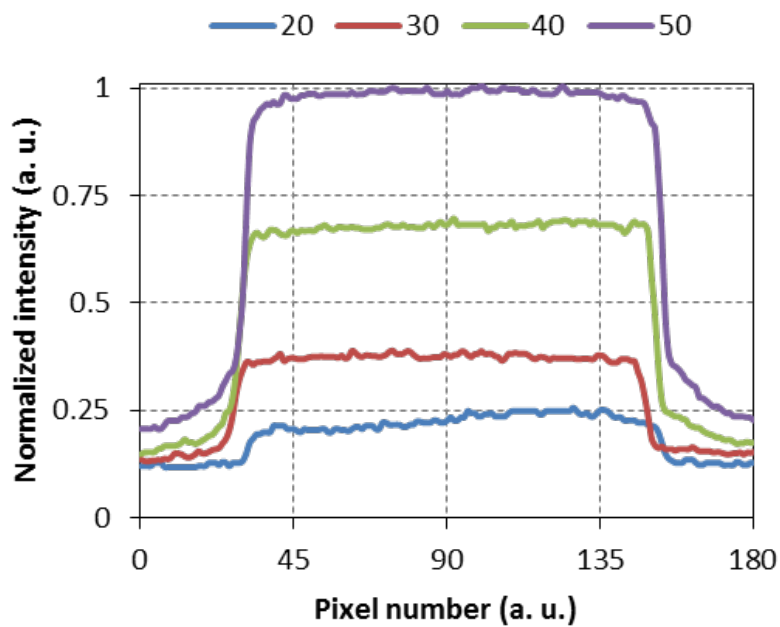
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PDMS chip fabrication process

A 100- μm SU8 photoresist (Microchem, SU8-50) is spin-coated onto a silicon wafer (Brewer Science, CEE200). The coated wafer is then prebaked for 10 and 30 min at 65°C and 95°C, respectively. Next, it undergoes UV exposure for 19 seconds by using a mask aligner (OAI, 506). Subsequently, a postbaking process of 1 and 10 min at 65°C and 95°C, respectively, is applied. Finally, the master is fabricated after developing (Microchem, SU8 developer) at room temperature for 6 min and hard-baking at 120°C for 10 min. For mold casting the PDMS chip, a mixture of PDMS prepolymer (Dow Corning, Sylgard 184) and curing agent at a ratio of 10 : 1 is poured over the master, degassed, baked for 2 hours at 75°C and the peeled off. A Harris uncore sampling punch (0.75mm) is used to manually punch the inlet and outlet holes. The PDMS devices are exposed to air plasma for 15 seconds by using a corona treater (Electro-Technic Products, BD-25) to bond it with a PDMS coated glass substrate and baked overnight at 75°C before it can be used in the experiment.



(a)



(b)

Figure S1. (a) Measurement of mixing efficiency of the chaotic micromixer by using DI water and Ficoll + fluorescein, and (b) fluorescent intensities across the microchannel under different flow rates.

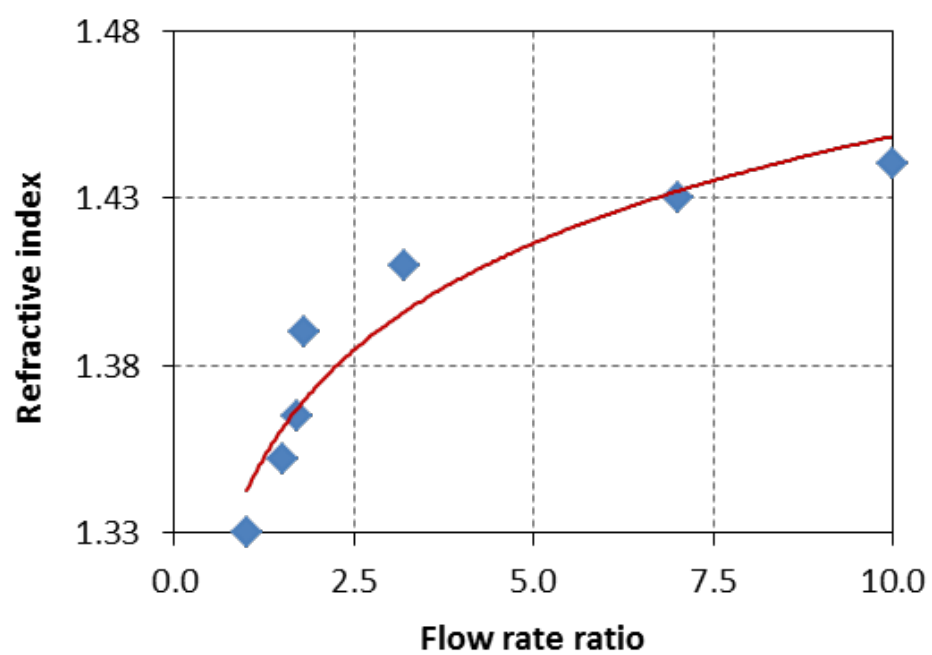


Figure S2. Tuning of the refractive index of the external medium by varying the flow rate ratio between the DI water and the Ficoll solution.