

Electronic Supplementary Material (ESI) for Lab on a Chip
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Supporting Information for Lab on a Chip

Fast Screening of Bacterial Suspension Culture Conditions on Chip

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Supporting information

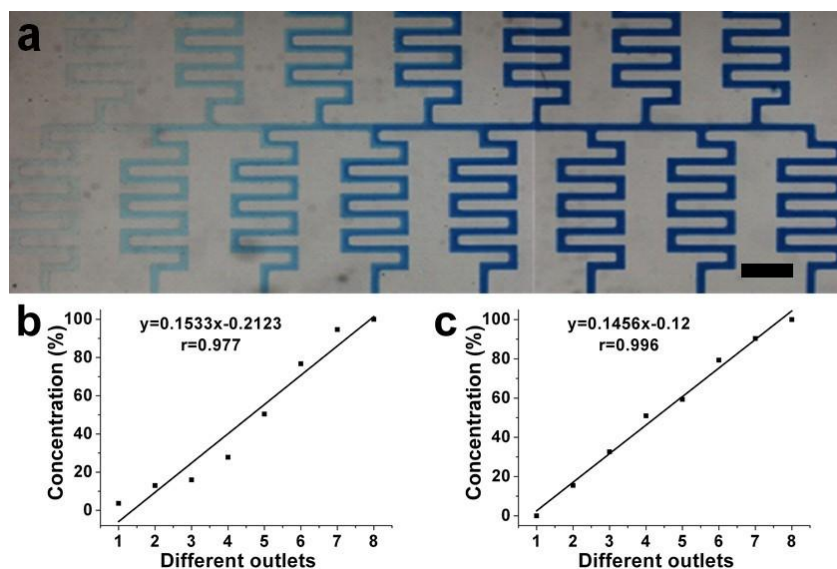


Fig. S1 (a) Optical micrograph of methylene blue solution concentration gradient on chip, scale bar: 500 μm; and quantitative concentration profile at the outlets under different geometry and flow conditions: (b) the S-shape mixing channel length: 6.6 mm, and the flow rate: 1.0 μL s⁻¹; (c) the S-shape mixing channel length: 8.4 mm, and the flow rate: 0.2 μL s⁻¹.

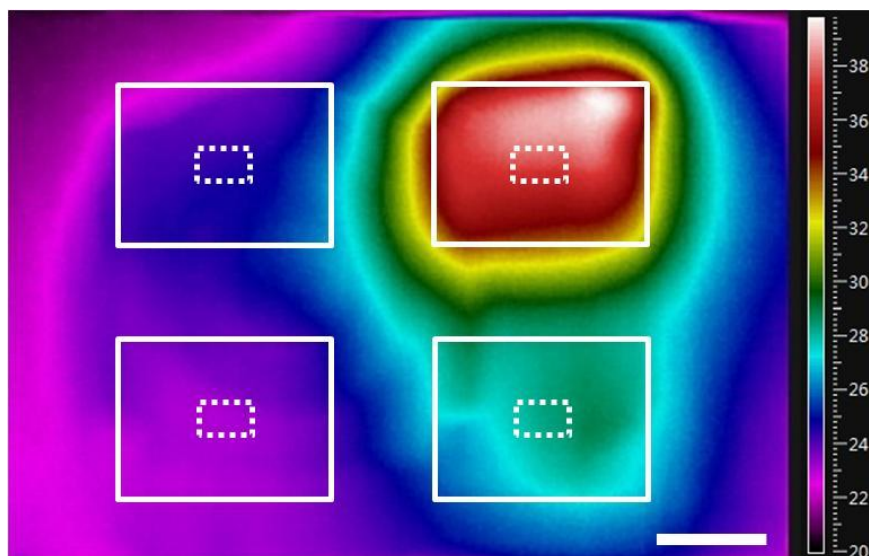


Fig.S2 Thermal image of the temperature-controlling chip. The solid squares are four temperature reservoirs independently set to 37 °C (upper right), 28 °C (lower right), 25 °C (upper left) and 22 °C (lower left). The dashed squares are the bacterial culture areas located at each temperature zones. Scale bar: 1 cm.

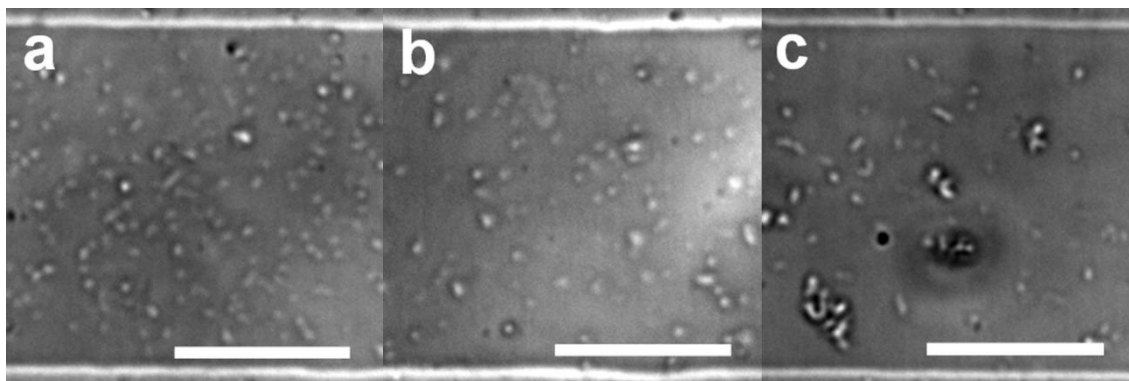


Fig. S3 *E. coli*'s biological morphology on chip: (a) pH=7, grows normally in single cells; (b) pH=5, grows normally in single cells; (c) pH=3, partially grows in clusters. Scale bar: 50 μm.

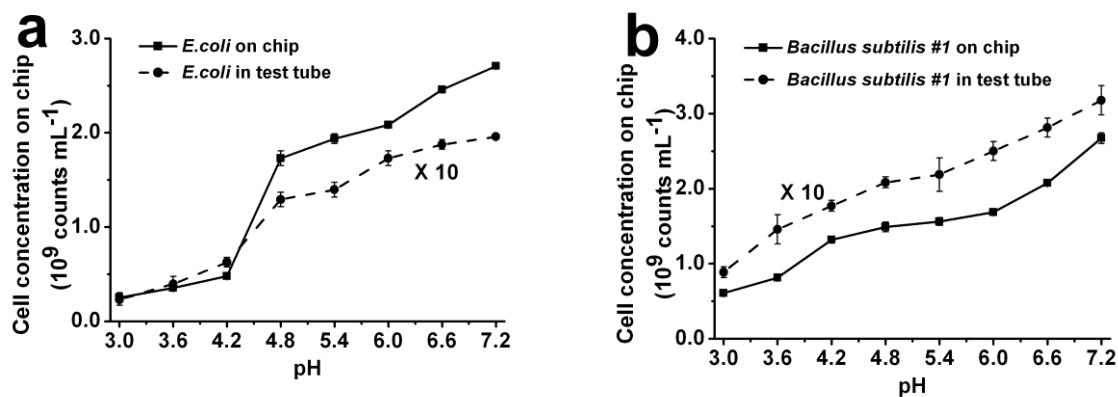


Fig.S4 (a) The effect of pH on the growth of *E. coli* on chip and in test tubes. The cell concentration in test tubes is multiplied by a factor of 10 for clarity; (b) The effect of pH on the growth of *Bacillus subtilis* #1 on chip and in test tubes (also multiplied by a factor of 10 for clarity).

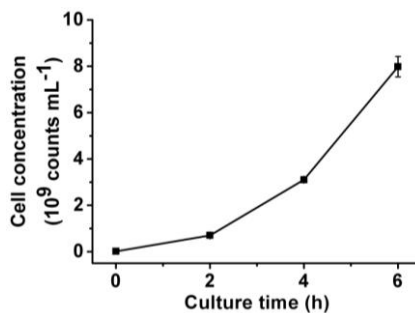


Fig.S5 Growth curve of *E. coli* at 37 °C on chip.