

SUPPLEMENTARY MATERIALS

A Fluorescence Microbead-based Microfluidic Immunoassay Chip for Immune Cell Cytokine Profiling

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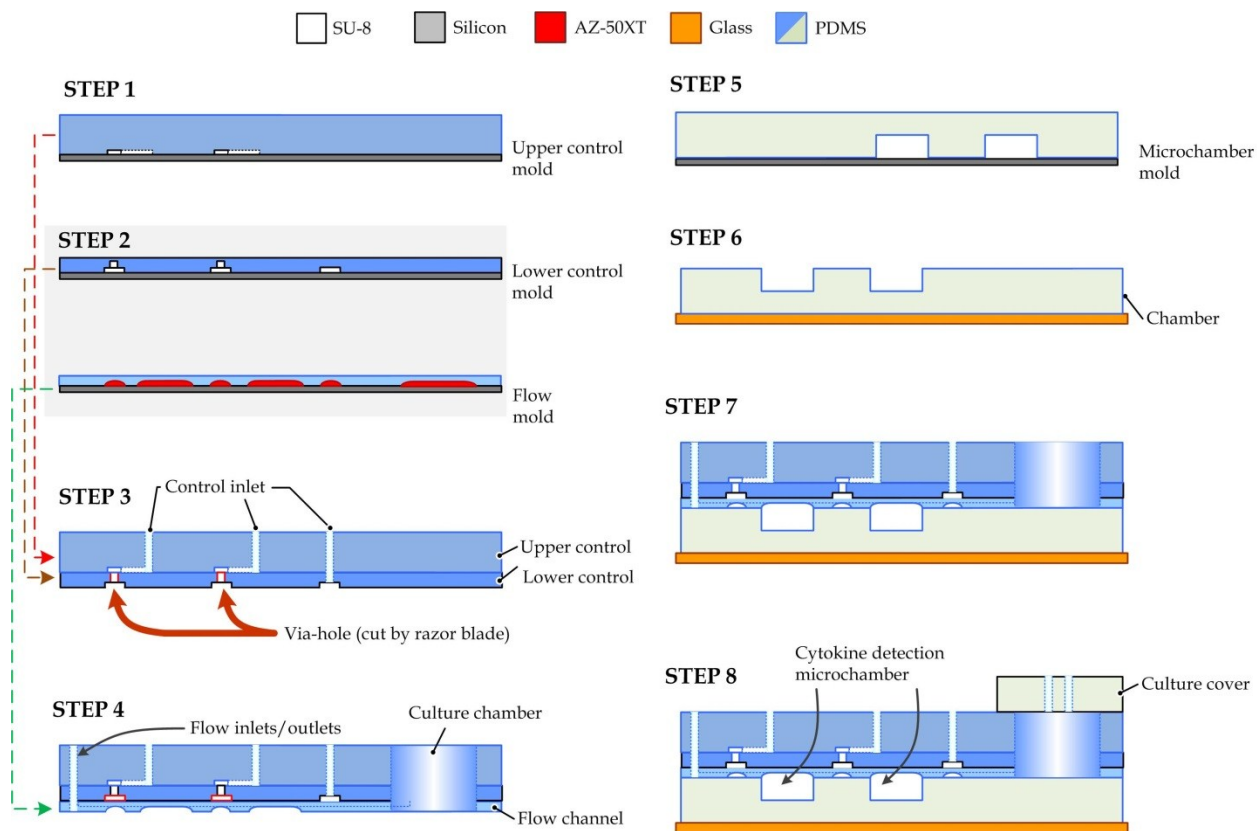


Figure S1. Fabrication of the microfluidic immunoassay device.

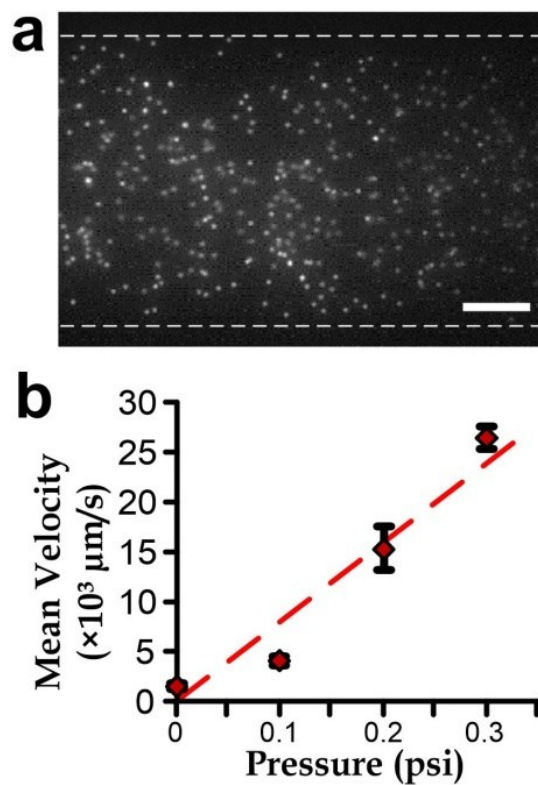


Figure S2. Flow rate measurement of the ‘Extraction’ microchannel. (a) A snapshot of fluorescence microbeads flowing along the microchannel driven by an inlet pressure of 0.2 psi. Hidden lines are the channel edges. Scale bar: 20 μm . (b) Average microbead velocity against inlet pressure. The error bars are standard deviations.

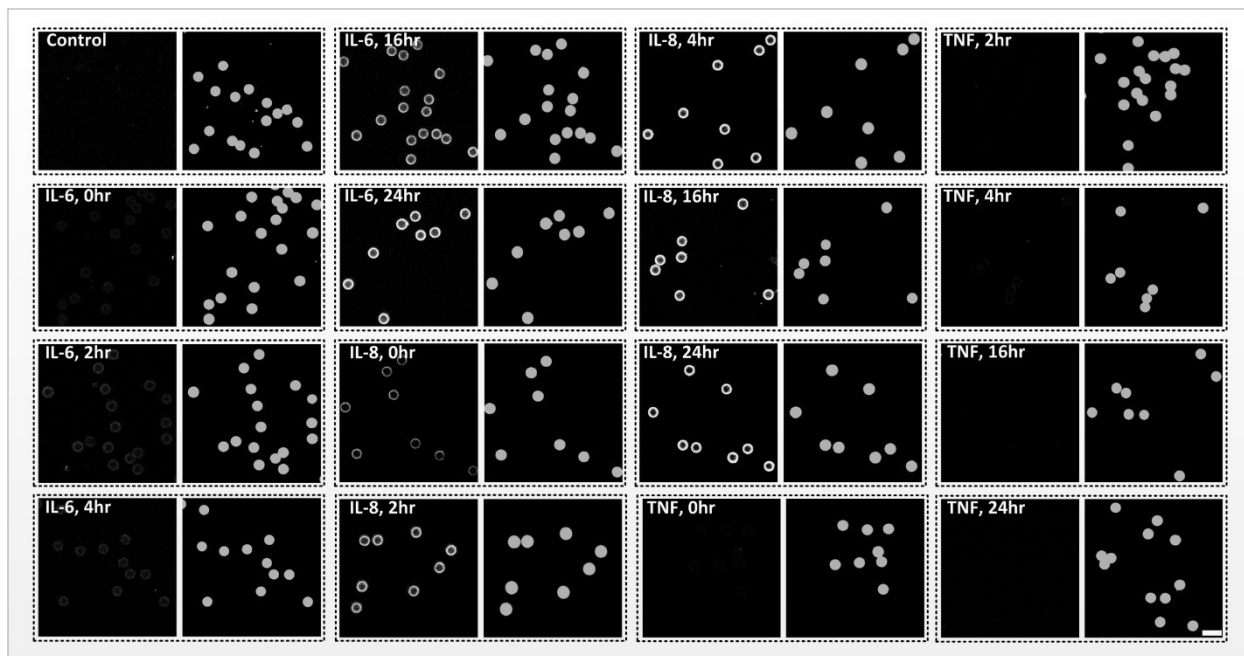


Figure S3. Fluorescent images of cytokine-sensitive intensities(488 nm) and cytokine beads(647 nm) in the 16 chambers for detecting three different cytokines(IL-6, IL-8 and TNF) expression at 5 time points after on-chip incubation and PHA(3pg/mL) stimulation. Scale bar: 10μm.

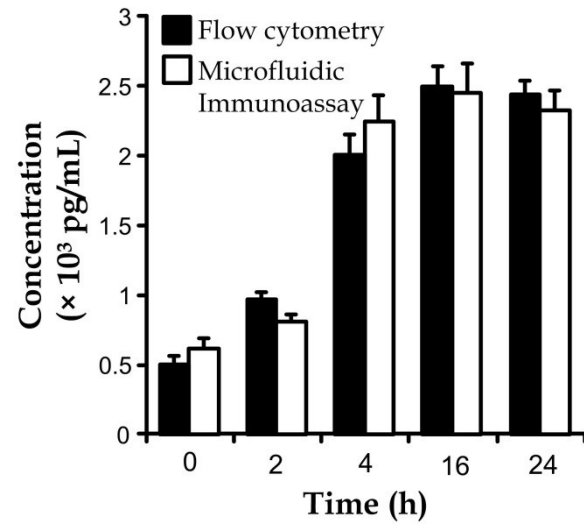


Figure S4. Cytokine secretion profiles of IL-8 stimulated by 5 μ g/ml of PHA measured by the flow cytometry and the microfluidic immunoassay device.

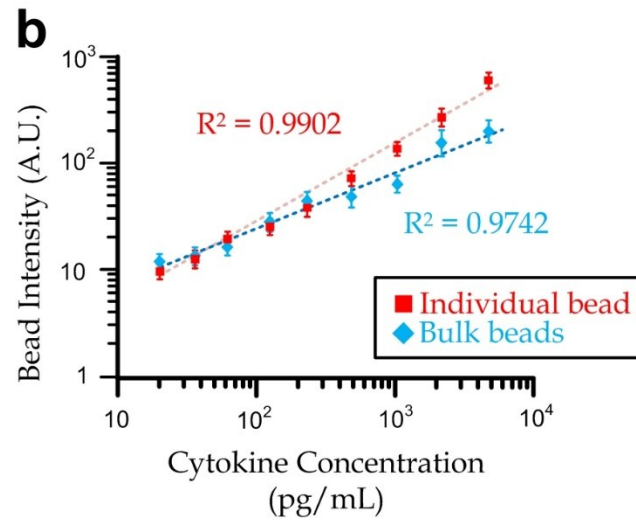
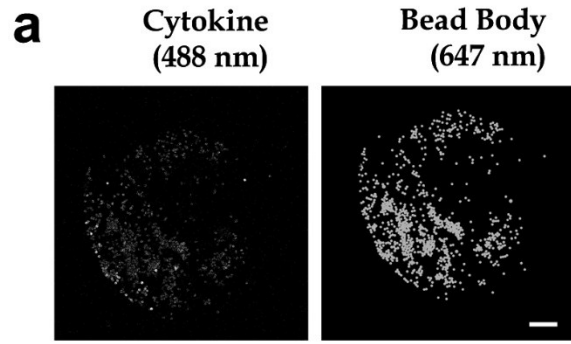


Figure S5. (a) Fluorescence micrographs of cytokine-sensitive intensities (488 nm) microbead and bodies (647 nm) in the whole chamber. (b) Calibration curves for IL-8 between individual and bulk bead intensities in the detection microchambers. Scale bar: 100 μm .