



Supplementary Fig. S1 (a) The assembly of sandwiched microdevice. Step 1: Polydimethylsiloxane (PDMS) precursors were poured onto the two PCB masters containing different patterns, cured and peeled off to form the control layer and the fluid layer; Step 2: A thin PDMS membrane was prepared by spin-coating PDMS precursors on a plain copper surface and then cured in an oven; Step 3: The control layer was bonded on the thin membrane by oxygen plasma; Step 4: the microdevice was constructed by bonding the flow layer on the other side of the thin membrane under an inverted microscope. (b) A SEM image showed a sandbag structure. At the middle of each sandbag structure there was a microtunnel with a dimension ranging from 3~4 μm. HL-60 cells could be immobilized on these microstructures. (c) Confocal micrograph of this microdevice illustrated the spatial arrangement of the compressive component and the sandbag structures. With the help of 6 alignment marks (3 marks on both fluid and control layers), the two layers were accurately assembled.