

## Supplementary Information

### Label-Free Isolation of Rare Tumor Cells from Untreated Whole Blood by Interfacial Viscoelastic Microfluidics

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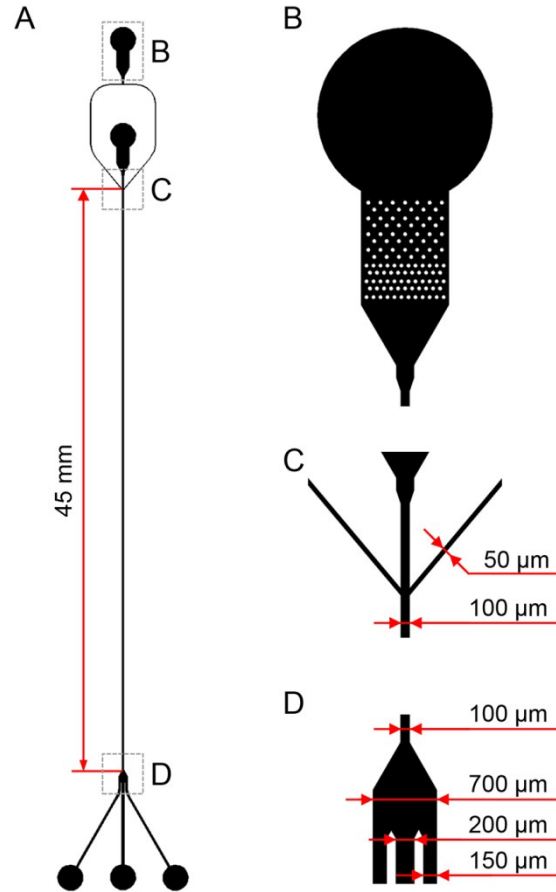
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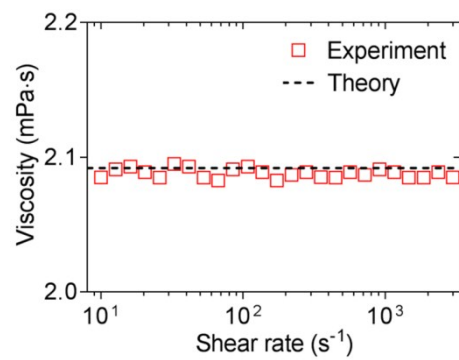
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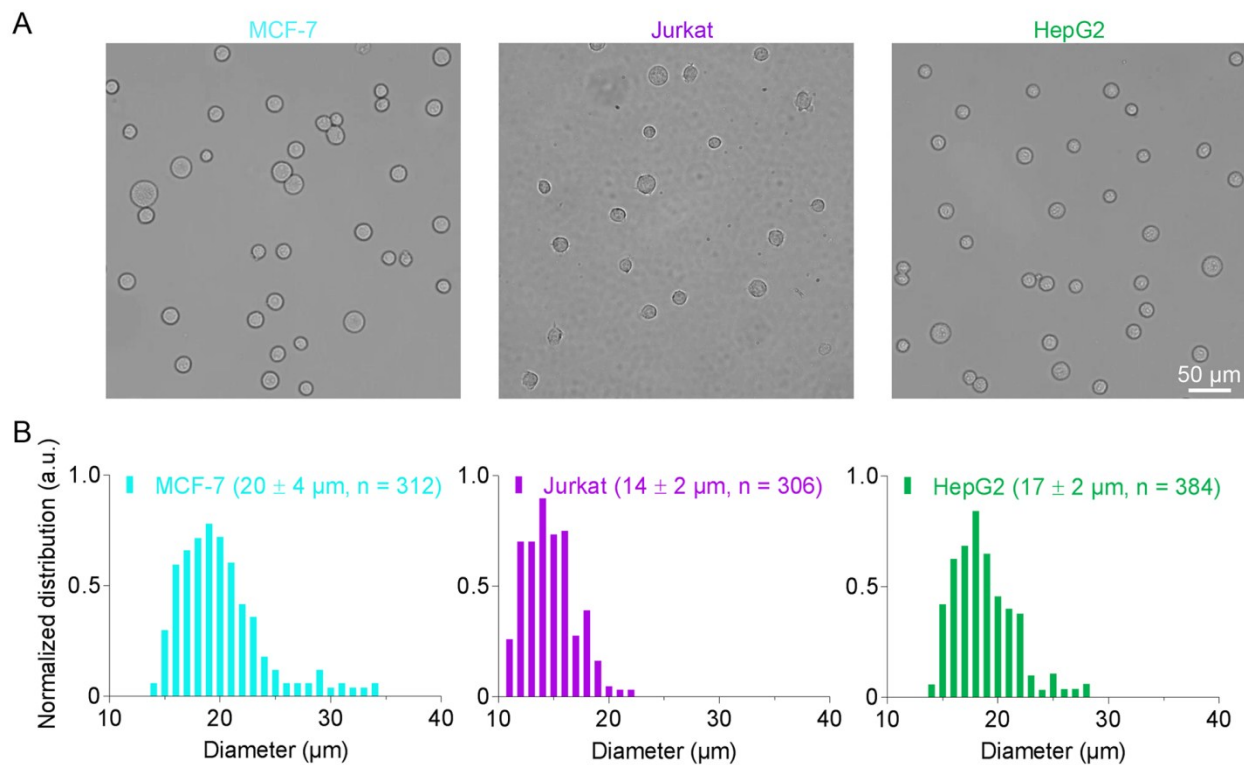
Tel:+86-10-82545621; Fax: +86-10-82545621



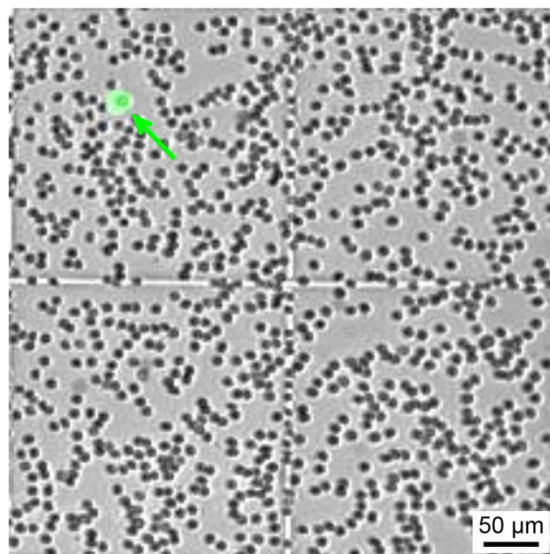
**Figure S1.** (A) CAD design showing that the co-flow microfluidic device consists of a separation section that is 45 mm long and 100  $\mu\text{m}$  wide, (B, C) two inlets with debris filters for core and sample fluids, respectively, and (D) three outlets for tumor cells (one center outlet with a width of 250  $\mu\text{m}$ ) and blood cells (two side outlets with a width of 150  $\mu\text{m}$ ), respectively. The entire microchannel has a uniform depth of 50  $\mu\text{m}$ .



**Figure S2.** Rheological measurement (markers) and theoretical calculation (dashed line) of shear viscosities of 0.005 % PEO solution.



**Figure S3.** (A) Representative bright-field images and (B) size distributions (mean  $\pm$  s.d.) of MCF-7, Jurkat, and HepG2 cells.



**Figure S4.** Cell counting by hemocytometer after microfluidic separation of whole blood spiked with HepG2 cells (green, initially spiked at a concentration of 50 cells mL<sup>-1</sup>).