

Supporting Information

Single Cell Analysis using Drop-on-demand Inkjet Printing and Probe

Electrospray Ionization Mass Spectrometry

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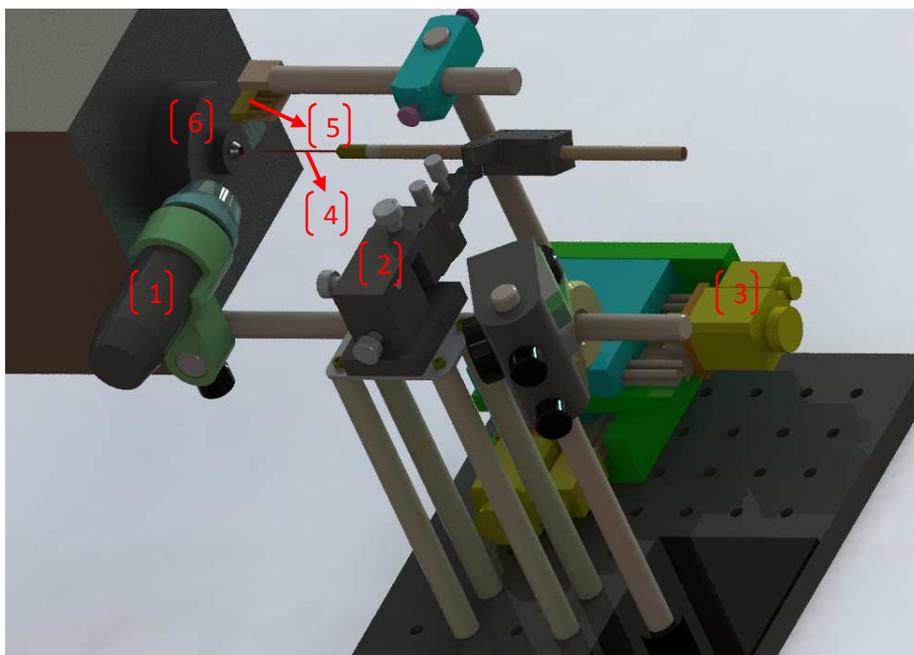
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17 1.Single-cell-manipulator system for inkjet printing.



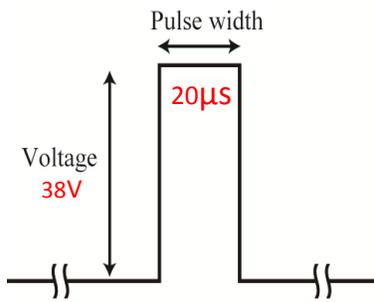
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19 Fig. S1. Single-cell-manipulator system for inkjet printing single-cells consists of (1)image capture device, a
20 digital microscope focused on the tungsten tip showing the cell ESI approaching to the MS nozzle orifice, (2)
21 manual XYZ platform, (3) automatic XY platform, (4) tungsten, (5) inkjet chip, (6) MS detector.

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2. Optimization of the inkjet driving waveform for drop on demand.



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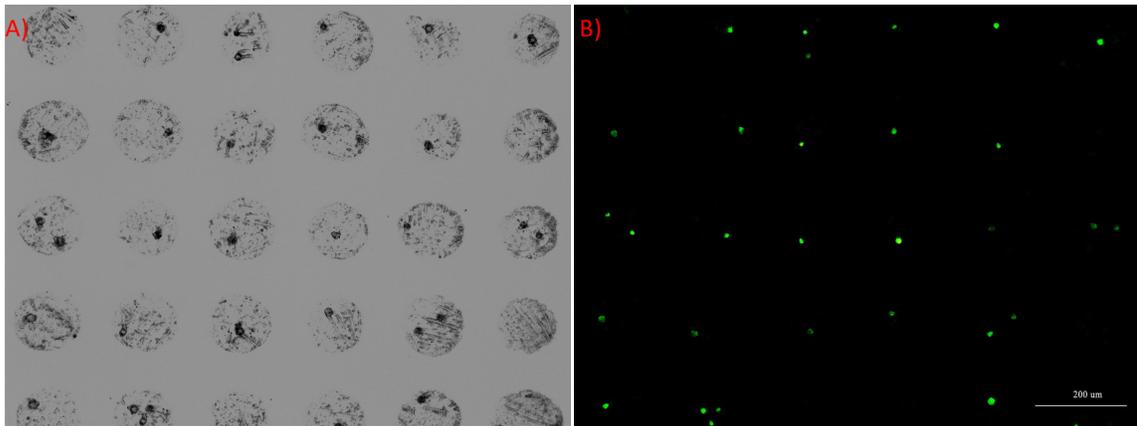
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Fig. S2. Optimization of the inkjet driving waveform

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3. Optimized cell distribution for single-cell dispensing experiment.

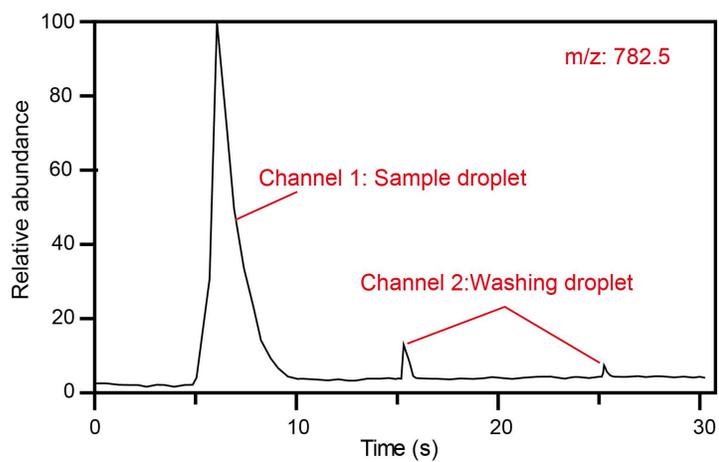


28 Figure S3. A) Optimized cell distribution for single-cell dispensing experiment. Cell array formed on glass
29 slides with 200um spacing between each single cell. and, B) Fluorescence images of cell array, stained by
30 the Calcein-AM assay for viability test. Scale bar 200μm.

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4. The analysis/washing cycle in mass spectra



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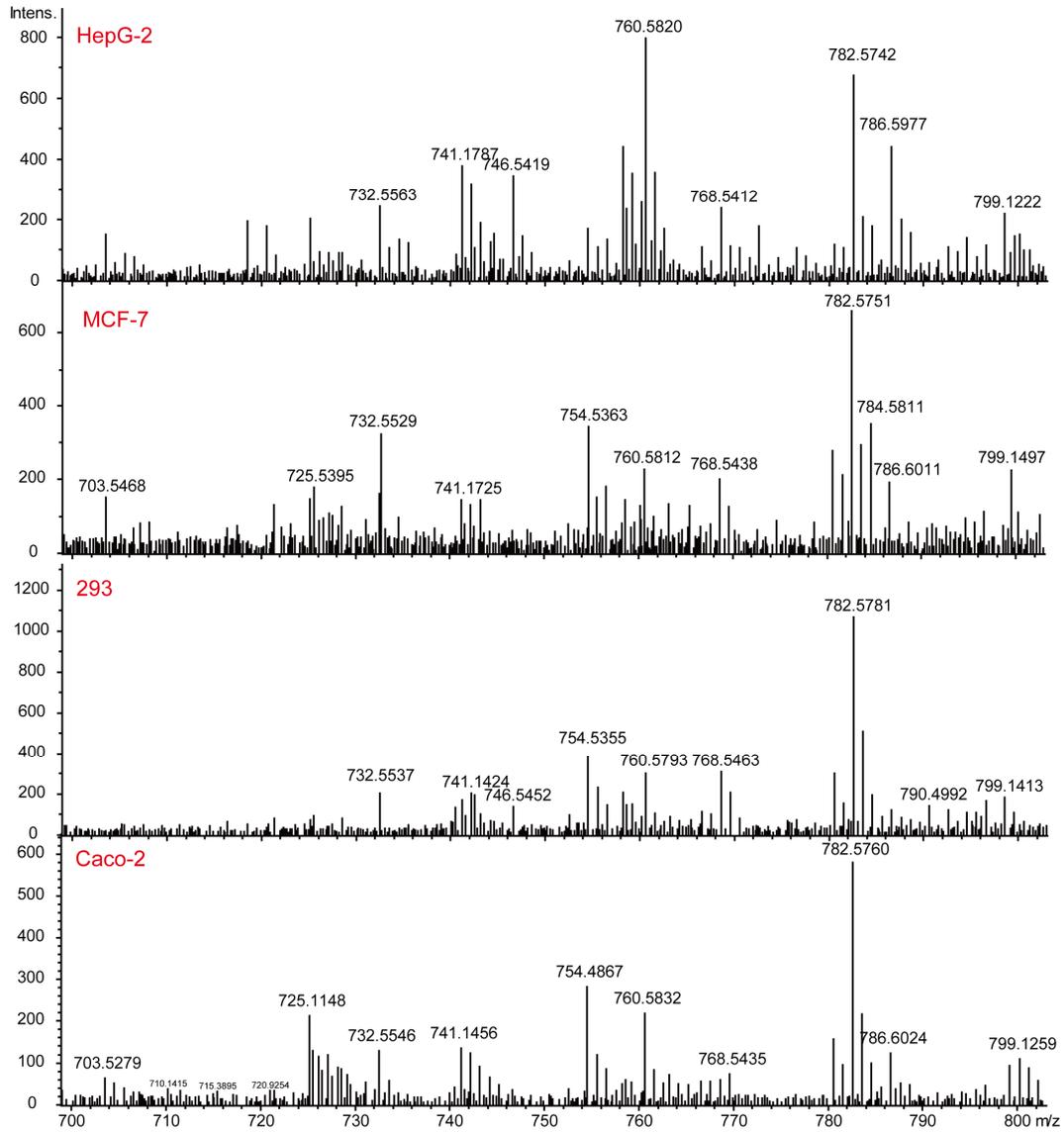
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Figure S4. The analysis/washing cycle in mass spectra

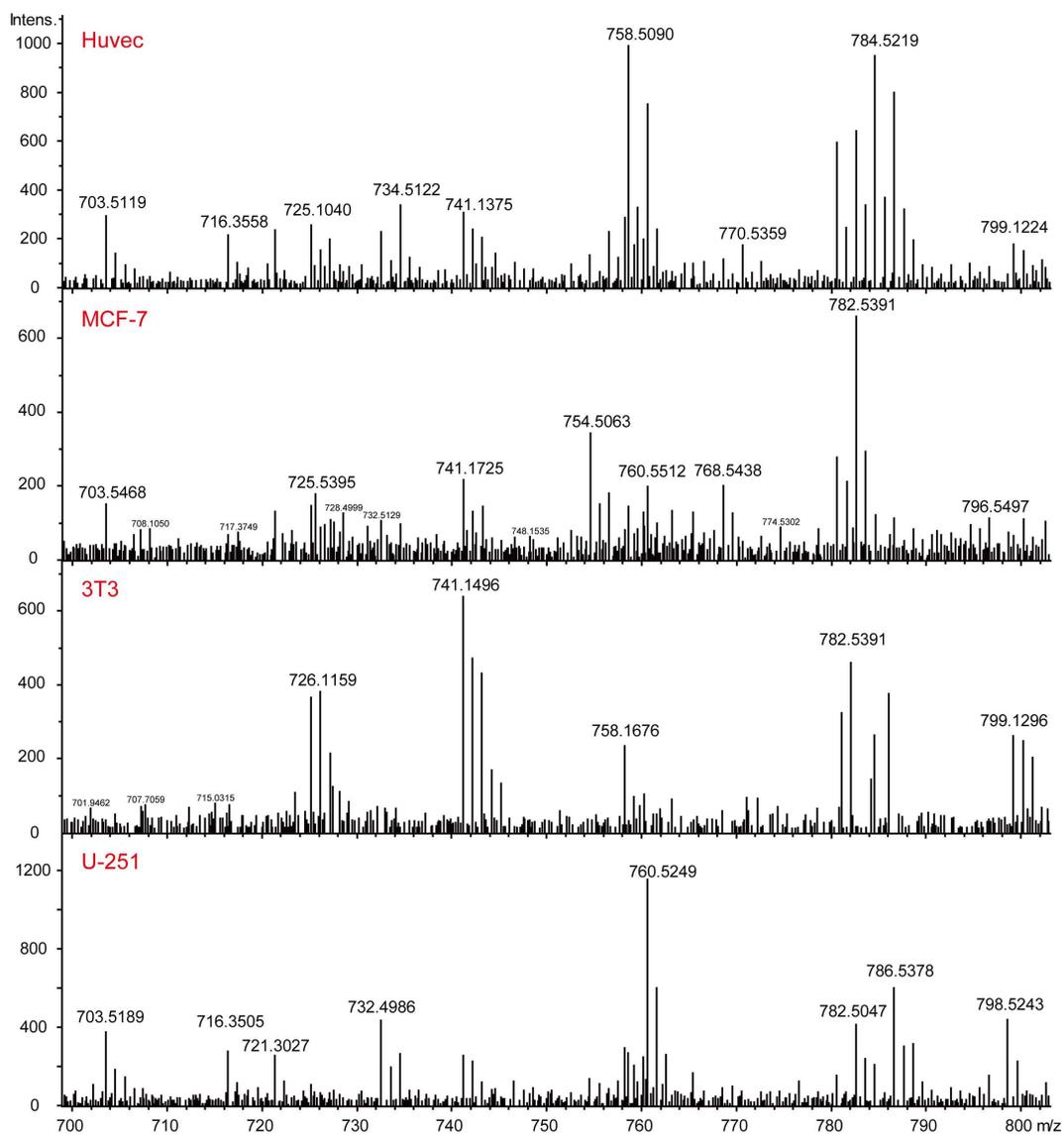
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36 5. Mass spectrum of U-87 cells, U251 cells, HepG2 cells, MCF-7 cells, 293 cells, Caco-2 cells,

37 HUVEC cells and 3T3 cells.



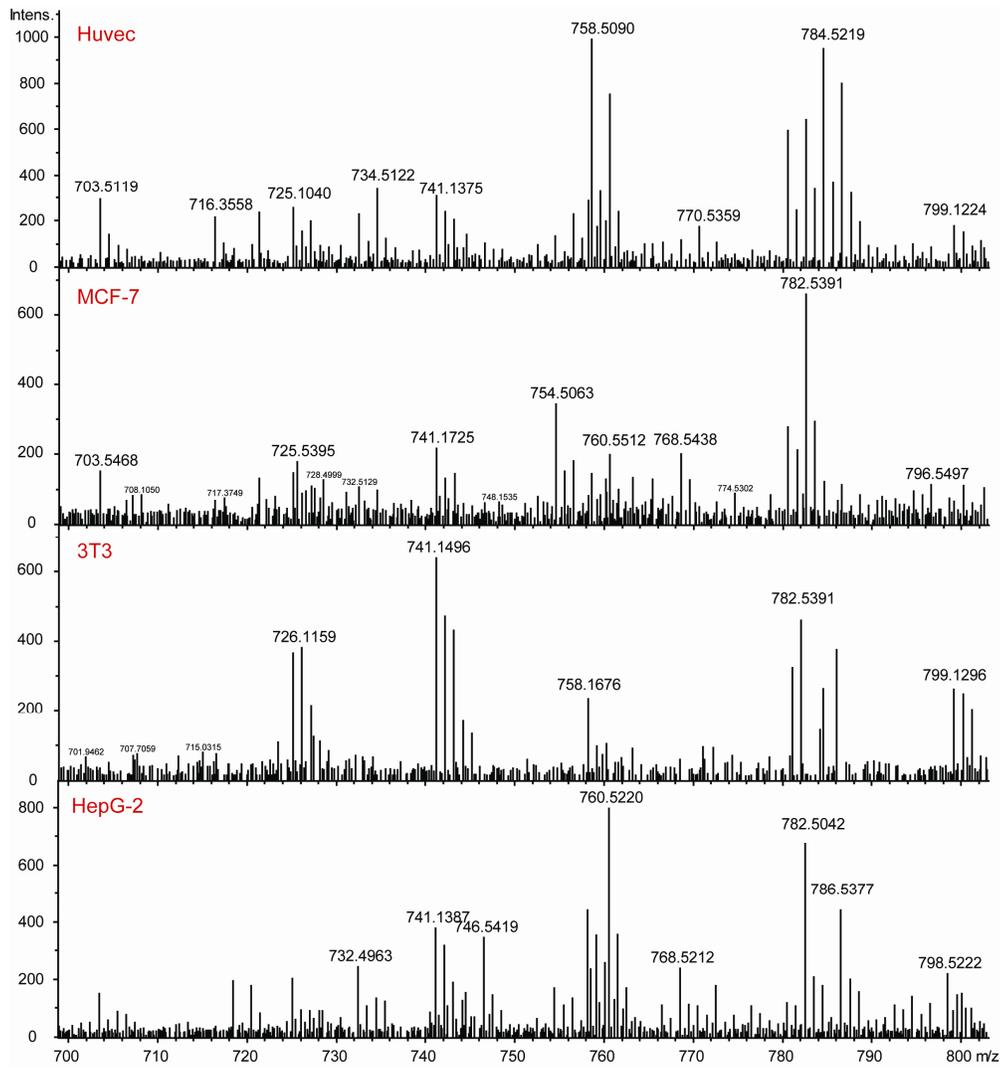
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40 Figure S5. Mass spectrum of U-87 cells, U251 cells, HepG2 cells, MCF-7 cells, 293 cells, Caco-2 cells,
 41 HUVEC cells and 3T3 cells.

6. Mass spectrums of major phospholipids detected from different target cells.



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Figure S6. Mass spectrums of major phospholipids detected from different target cells.

45 Table S1. Optimization of inkjet printing droplets volumes.

Droplet number	1	2	5	10
Drop volume (pL)	486	972	2430	4860
Mass RSD% (N=10)	8.7	4.8	2.0	1.8

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