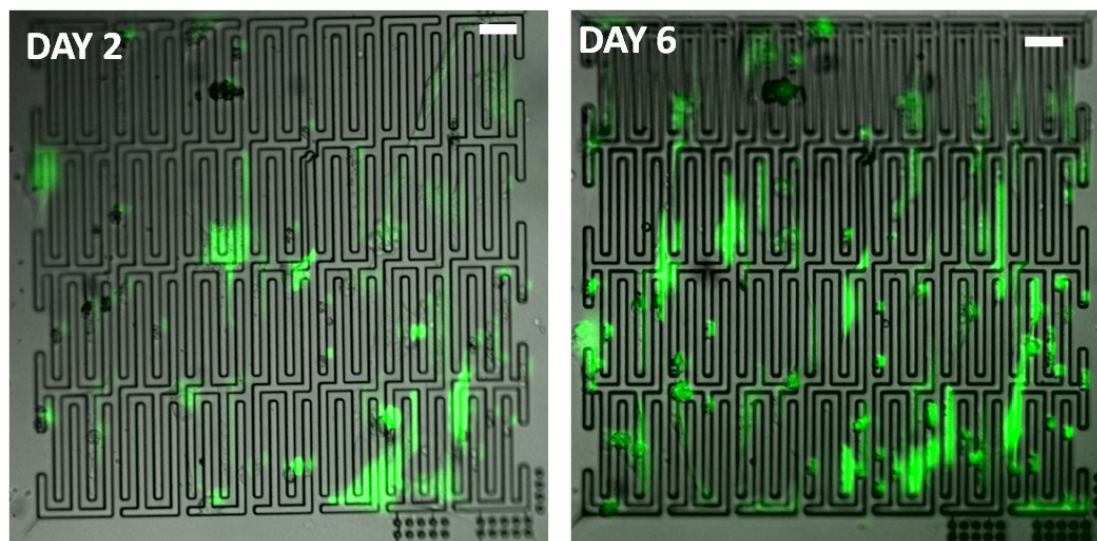


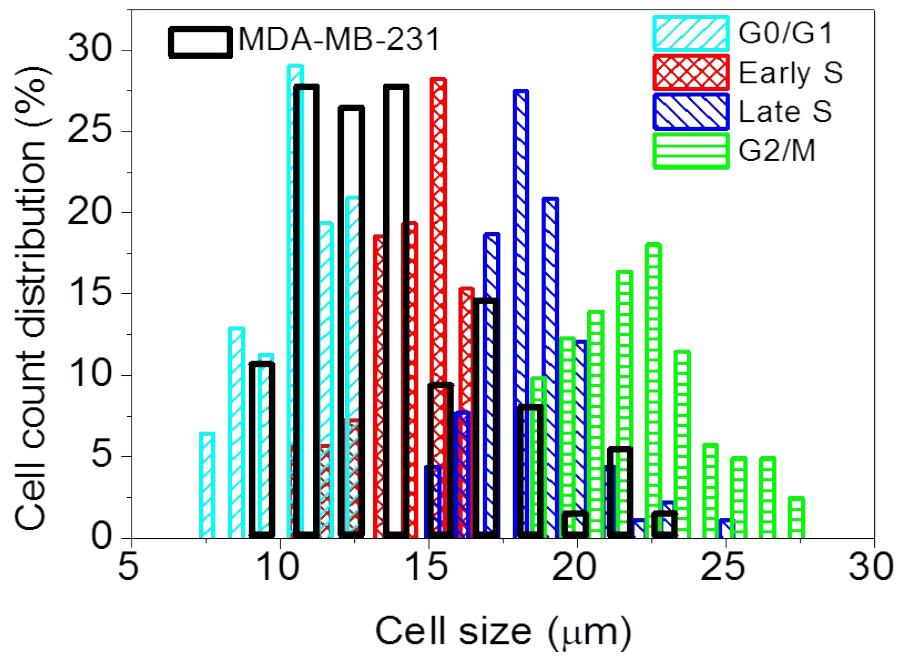
Supplemental Information

Viable Cell Capture by tFMSA



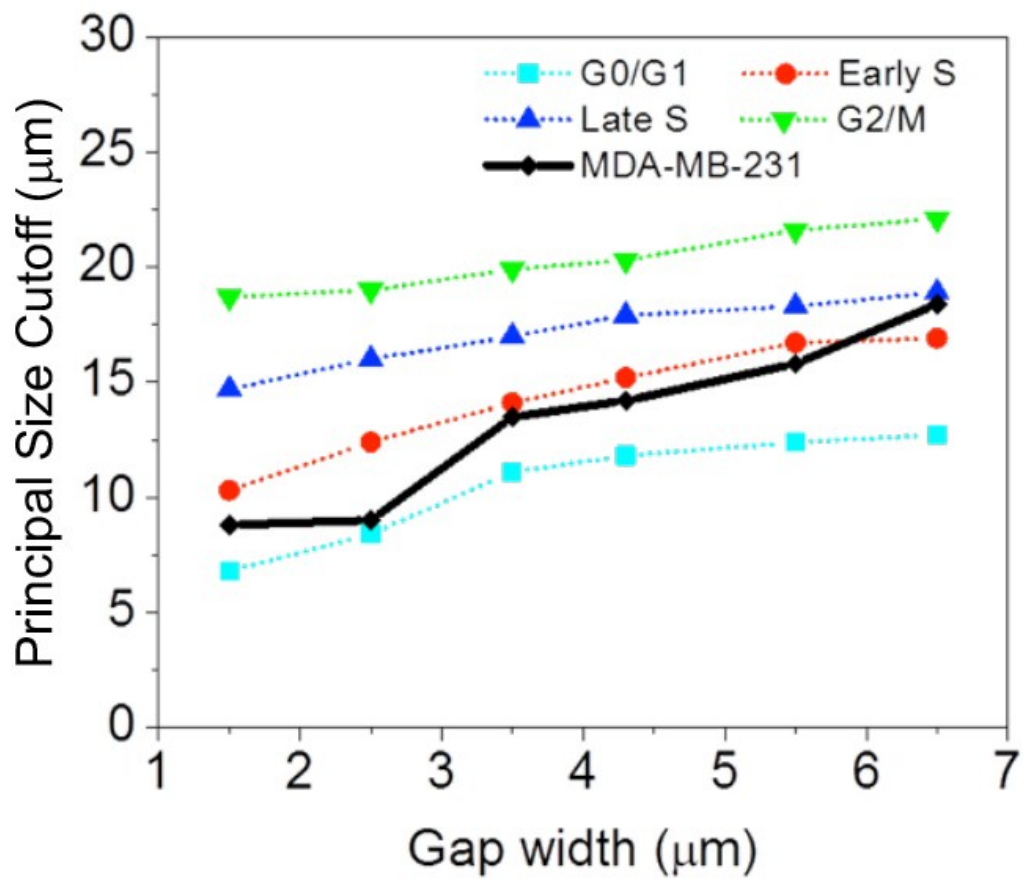
Supplemental Fig. 1: On-chip culture of captured GFP-labeled C8161 cells for 6 days. Images show overlay of Differential Interference Contrast (DIC) and fluorescence with pseudocolor added. Scale bars are 30 μm .

MDA-MB-231 Cell Size Distribution Overlay



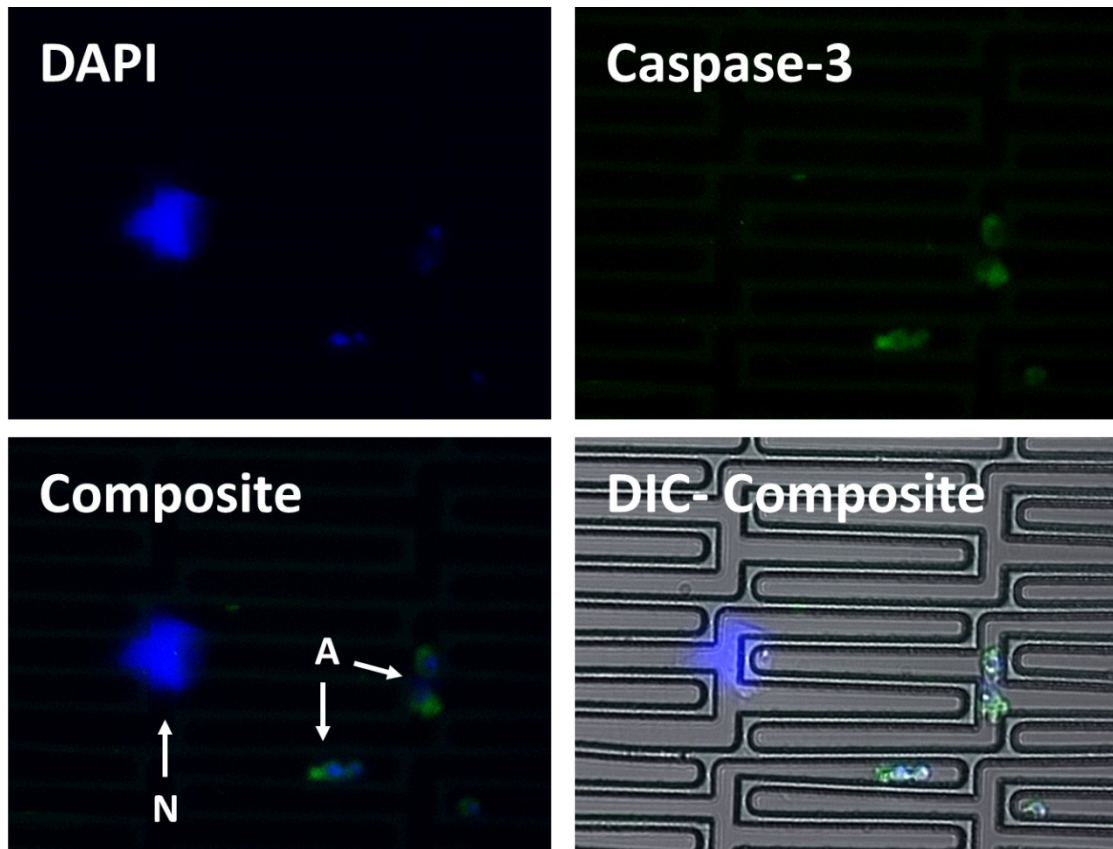
Supplemental Fig. 2: Measured size distribution of MDA-MB-231 cells by cell cycle stage with overlaid size distribution of a mixed population of MDA-MB-231.

MDA-MB-231 PSC Overlay



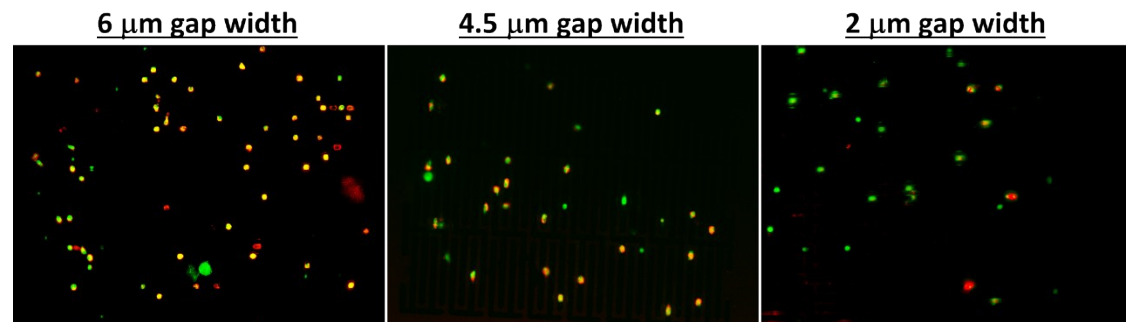
Supplemental Fig. 3. PSC function determined from measured cell size distribution and capture efficiency of MDA-MB-231 cells by cell cycle stage with overlaid PSC function for a mixed population of MDA-MB-231.

Confirmation of Apoptotic Cell Shrinkage



Supplemental Fig. 4. Immunocytochemical detection of active caspase-3 (green) in apoptotic cells after prolonged serum starvation. Nuclei are stained with DAPI (blue). Apoptotic cells (A) can be seen to express active caspase-3 while the necrotic cell (N) does not.

Blood Cell Fractionation



Supplemental Fig. 5: Representative images of fractions obtained of granulocytes (red and green) and mononuclear leukocytes (green) in 7, 6 and 4.5 μm tFMSA chambers.

Supplemental Tables: Quantification Results of tFMSA Fractionation Experiments

Supplemental Table S1.A

Fig. 3E Polystyrene Spheres

Gap width (μm)	8 μm counts	5 μm counts
initial sphere spiked	205 \pm 5	201 \pm 2
5.5	20 \pm 2	0
4.3	180 \pm 12	0
2.5	0	190 \pm 22
1.5	0	8 \pm 4

Fig. 3F Polystyrene Spheres

Gap width (μm)	10 μm counts	3 μm counts
initial sphere spiked	211 \pm 6	193 \pm 6
5.5	198 \pm 21	0
4.3	4 \pm 2	0
2.5	0	10 \pm 4
1.5	0	190 \pm 14

Supplemental Table S1.B

Fig.5B Cancer Cell Lines

Gap width (μm)	C8161 (cell counts)	MDA-MB-231 (cell counts)
initial cell spiked	222 \pm 9	272 \pm 11
7	132 \pm 32	44 \pm 12
6	30 \pm 18	31 \pm 12
4.5	36 \pm 13	190 \pm 32

Supplemental Table S1.C

Fig.7A Cell Cycle

Gap width (μm)	G2/M (cell counts)	Early S (cell counts)
initial cell spiked	322 \pm 19	332 \pm 15
6.5	132 \pm 12	0

4.5	117 ± 28	61 ± 11
2.5	45 ± 13	234 ± 32

Fig.7B Cell Cycle

Gap width (μm)	G2/M (cell counts)	G0/G1 (cell counts)
initial cell spiked	312 ± 9	287 ± 11
5.5	174 ± 11	1 ± 1
3.5	101 ± 12	47 ± 12
1.5	24 ± 4	249 ± 22

Supplemental Table S1.D

Fig.8E Cell Viability

Gap width (μm)	Necrotic cells (cell counts)	Apoptotic cells (cell counts)	Viable cells (cell counts)
5.5	176 ± 12	0	50 ± 7
3.5	20 ± 6	88 ± 21	121 ± 10
1.5	0	106 ± 15	29 ± 6

Supplemental Table S1.E

Fig.9E Blood Cell

Gap width (μm)	Granulocyte (cell counts)	Mononuclear cells (cell counts)
6	198 ± 21	71 ± 11
4.5	210 ± 11	45 ± 12
2	186 ± 44	474 ± 33