Microfluidic Cell Surface Antigen Expression Analysis using a Single Antibody Type

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Supporting Information

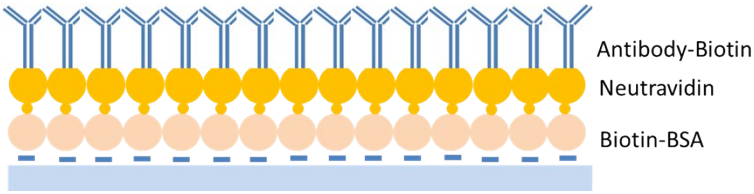

Figure S1. Illustration of the sandwich deposition approach to form the affinity surface. Biotin-Bovine Serum Albumin is added first, followed by neutravidin. Chips are stored with neutravidin coatings until used. Biotinylated antibodies are added before cell separation using pneumatic valves to control the coating areas.

Table S1. Results of flow rate studies for herringbone chips. At most flow rates, the capture purity was high. The best capture efficiency was achieved at flow rate of 0.04 mL/h.

Rate (mL/h)	Efficiency (%)	Purity (%)
0.01	5.15	67.55
0.02	4.54	94.28
0.03	2.91	86.93
0.04	14.58	95.38
0.05	6.39	97.46
0.06	3.79	94.25

Table S2. Results of experiments to investigate the relationship between capture ratio and modified antibody concentration. The capture ratio at lowest concentration was set as "1" and the rest were normalized.

Antibody Concentration (μg/mL)	Cell Capture Ratio	Cell Capture Ratio	Cell Capture Ratio	Cell Capture Ratio (Average)	Standard Deviation
	(1st trial)	(2nd trial)	(3rd trial)		
0.00625	1	1	1	1.00	0.00
0.0625	2.22	2.16	2.09	2.16	0.07
0.625	8.32	6.63	7.83	7.59	0.87
2.5	12.31	10.81	13.08	12.07	1.15
4.375	15.88	14.37	16.87	15.71	1.26
6.25	11.56	13.45	16.58	13.86	2.54

Table S3. Results of cell capture with cell line mixtures (6 trials). The ratios were HuT 78 T lymphocytes to Ramos B lymphocytes. The capture ratio in the first region was consistent with the antigen expression ratio.

Antigen Expression Ratio	0.73	1.45	1.88	2.81	3.47	4.62
1st Region Cell Capture Ratio	0.88	1.25	2.18	2.14	3.18	3.91
2nd Region Cell Capture Ratio	1.35	3.43	3.00	1.82	2.45	1.13