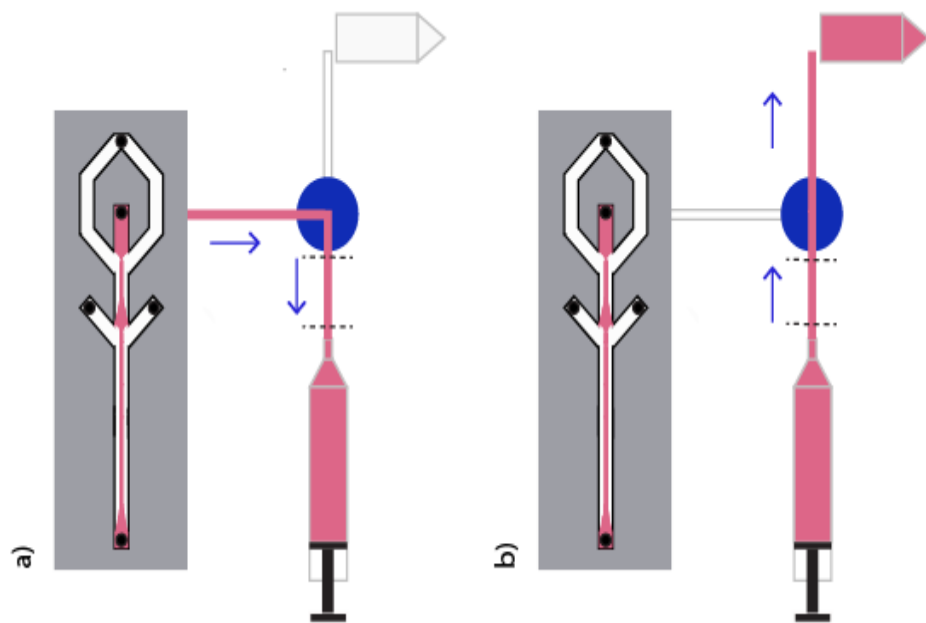


Supplementary Figure 1. Confocal microscopy pictures showing the microchannel cross-section. a) Horizontal one dimensional focus. The focused band appears longer in the height direction as the focus depth is relatively deep. b) Particles laying on the channel bottom without flow. The picture illustrates how they appear long and gives a feeling of the focus depth limitations.



Supplementary Figure 2. The sampling system. a) The sample is collected from the chip through the valve (blue) into a piece of tubing with an inner volume of about 10 μL , connected to a syringe. A 10 μL sample is collected in the sample collecting tube indicated between the dashed lines. b) The valve is switched, and by reversing the flow, the 10 μL sample is collected in an Eppendorf tube. The sample flow direction during the two modes is indicated by the blue arrows.

Supplementary Table 1. Flow rate settings and results for concentrating the 5 µm diameter particles in the one outlet region set-up.

Attempted concentration	Input flow rate (µL/min)	Side outlets (µL/min)	Centre Outlet (µL/min)	One-dimensional focusing		Two-dimensional focusing	
				Concentration factor	Recovery (%)	Concentration factor	Recovery (%)
5	100	40	20	4.6 ± 1.1	92 ± 22		
10	100	45	10	9.0 ± 2.0	90 ± 20		
20	100	47.5	5	16.9 ± 1.6	84.5 ± 8.0	21.3 ± 2.4	106.5 ± 11.3
50	100	49	2	41.2 ± 2.2	82.4 ± 4.4	53.4 ± 3.9	106.8 ± 7.3
67	100	49.25	1.5	44.2 ± 8.3	66.0 ± 12.4	69.5 ± 8.4	103.7 ± 12.1
100	100	49.5	1	17.2 ± 3.4	17.2 ± 3.4	63.8 ± 6.7	63.8 ± 6.7

Supplementary Table 2. Flow rate settings and results for concentrating the 5 µm diameter particles in the two outlet region set-up.

Attempted concentration	Input flow rate (µL/min)	First side Outlets (µL/min)	Second side outlets (µL/min)	Centre Outlet (µL/min)	One-dimensional focusing		Two-dimensional focusing	
					Concentration factor	Recovery (%)	Concentration factor	Recovery (%)
20	100	37.5	20	5	18.6 ± 1.4	93 ± 7	19.4 ± 2.3	97 ± 11.5
50	100	42.5	13	2	48 ± 1.7	96 ± 3.4	51.6 ± 6.1	103.2 ± 12.2
67	100	43.75	11	1.5	67.4 ± 6.2	100.6 ± 9.3	64.7 ± 2.3	96.6 ± 3.4
100	100	45	9	1	52.7 ± 4.3	52.7 ± 4.3	99.4 ± 5.5	99.4 ± 5.5

