Supplementary Material for:

A passive flow regulator with low threshold pressure for high-throughput inertial isolation of microbeads

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Supplementary data

Table S1. The comparison results of our passive flow regulator with other previously reported regulators.

Regulator	Fabrication Method	Max. constant Flow-rate (ml/min)	Operating Pressure (kPa)	Variation (%)
Silicon membrane valve [18]	Dry etching	0.022	20	5
Push-up valve [19] [20]	Soft lithography	0.033	103	-
Parallel membrane valve [21]	Soft lithography	1.46	35	5
Planar check valve [22]	Soft lithography	1.2	100	3
Our work	Soft lithography	4.38	15	5

Table S2. The measured available sheath, sample and total Dean flow-rates for achieving inertial isolation of 5 μm and 15 μm microbeads.

Sheath flow-rate (ml/min)	**Sample flow-rate (ml/min)**	**Total Dean flow-rate (ml/min)**
0.85	0.05~0.4	0.9~1.25
0.9	0.05~0.35	0.95~1.25
0.95	0.05~0.3	1~1.25
1	0.05~0.25	1.05~1.25
1.1	0.05~0.2	1.15~1.3

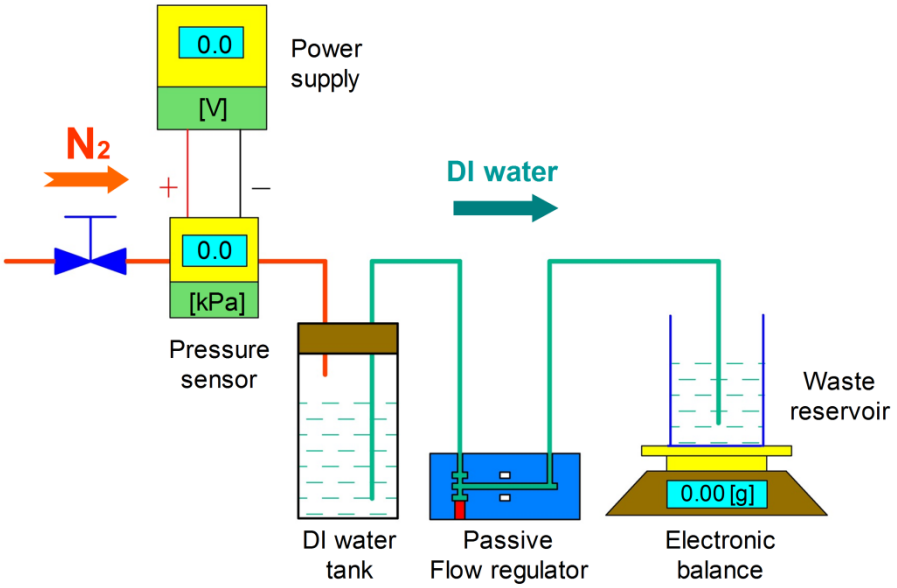

Fig. S1 Experimental setup for flow-rate measurement.

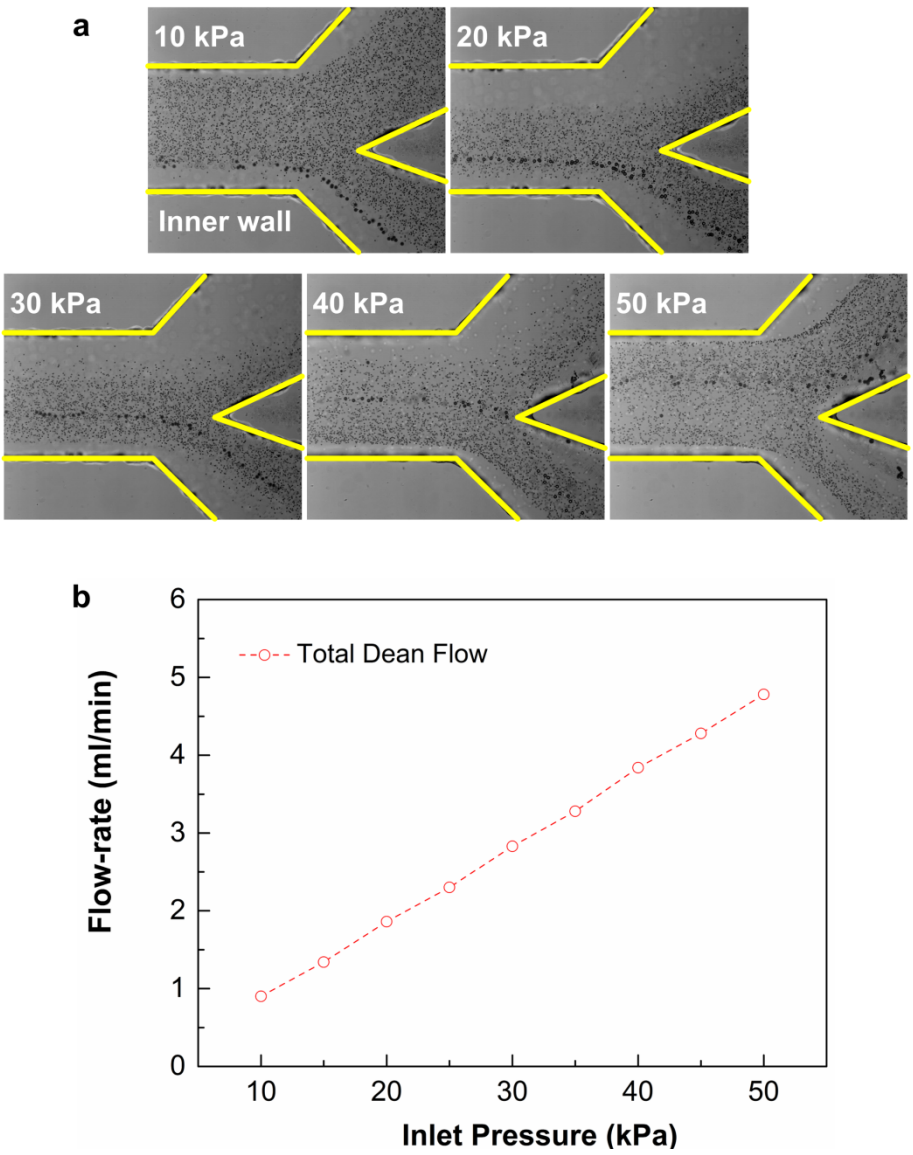

Fig. S2 Isolation performances of microbeads under varied gas pressures in the system without regulators. (a) Composite images illustrating microbead distributions near the outlets under the pressures ranging from 10 kPa to 50 kPa. (b) The measured total Dean flow-rates as a function of inlet pressures.