Supporting information

Gravimetric flow rate determination

To determine flow rates gravimetrically, the methods described by Grover et al. were employed. PEEK tubing was attached to the outlet and inlet of a micropump. The inlet tubing was placed into an open source of water. The outlet tubing was placed in direct contact with approximately 10 mL H_2O in a scintillation vial. This scintillation vial was placed onto a scale (Mettler PM1200). The scintillation vial was covered with parafilm with small holes punctured to prevent build-up of pressure. Prior to analysis, baseline measurements were made to determine the stability of the system. Over the time course of the pumping experiments, there was no drift in the data due to evaporation or hydrodynamic flow.

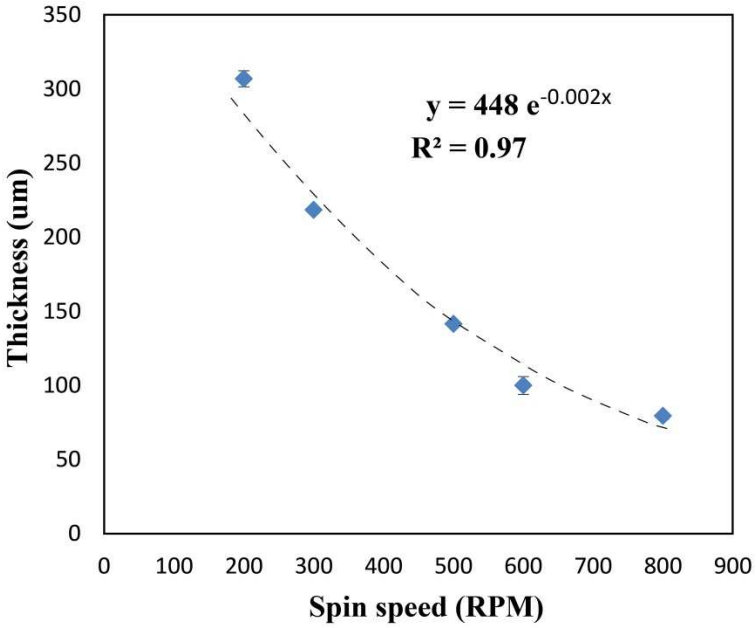

Figure S-1. Characterization of PDMS thickness on the SU-8 patterned wafer.

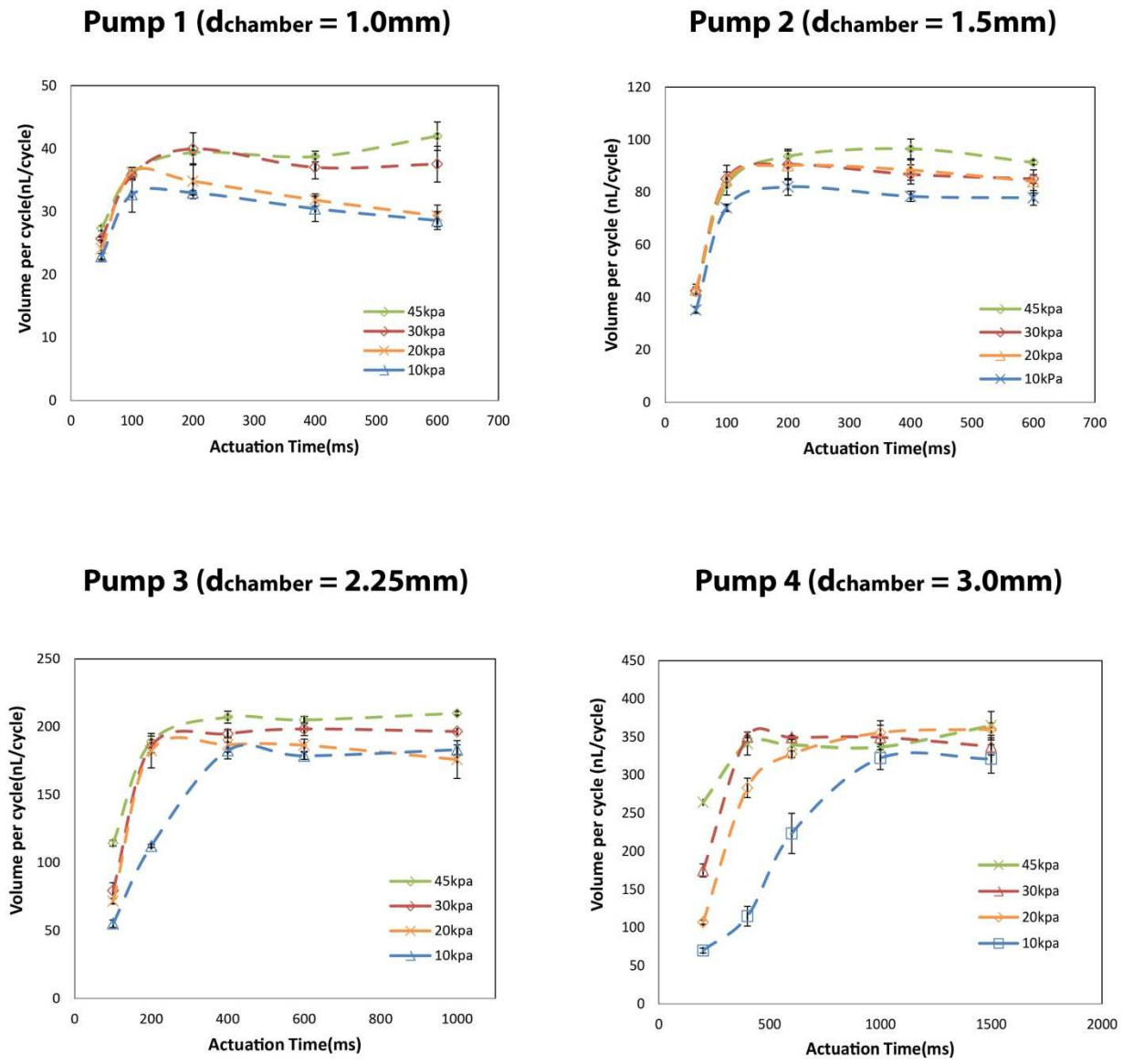

Figure S-2. Volume pumped per cycle as a function of actuation time and closing pressure for pumps 1-4.

$D_{chamber}$ (mm)	$d_{manifold}$(µm)	$d_{fluidic}$(µm)	A_i (mm^2)	V_{max}(nL)
1.00	60	25	0.14	55.67
1.50	60	25	0.32	106
2.25	60	25	0.72	238.6
3.00	60	25	1.29	424.1
3.75	60	25	2.01	783.2

Table S-1. Summary of design parameters and V_{max} for lifting gate microfluidic pumps.