

Supplementary information

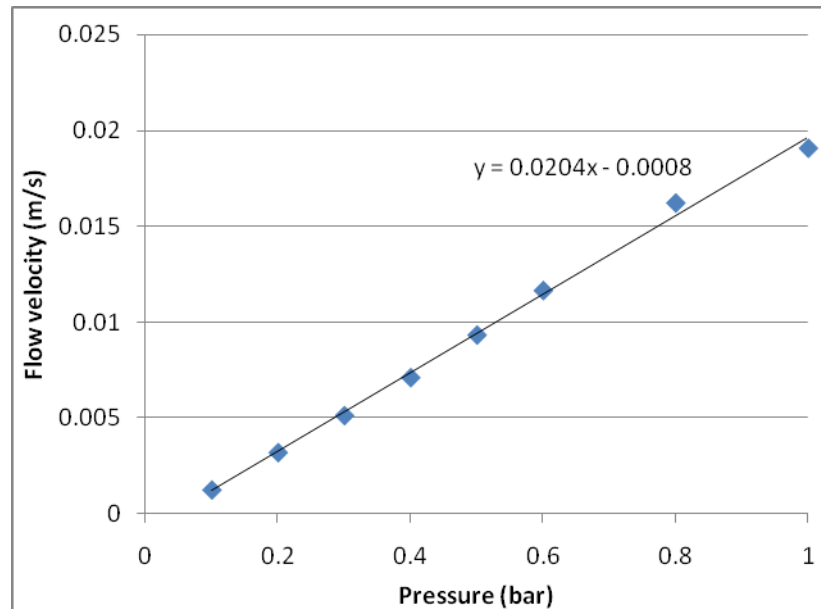


Figure S1. Mean flow velocity in channel measured under different flow pressures. Linear relation between pressure and flow velocity can be observed.

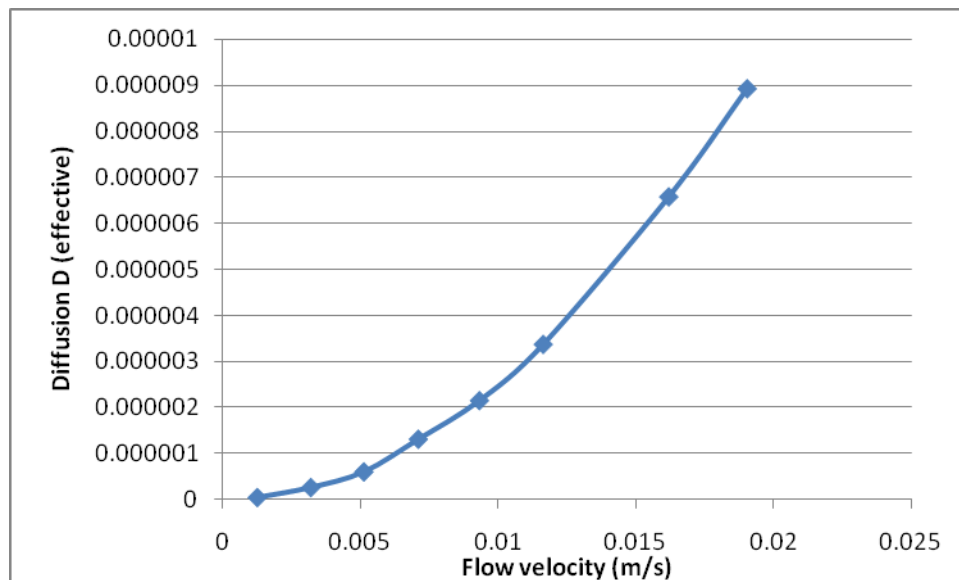
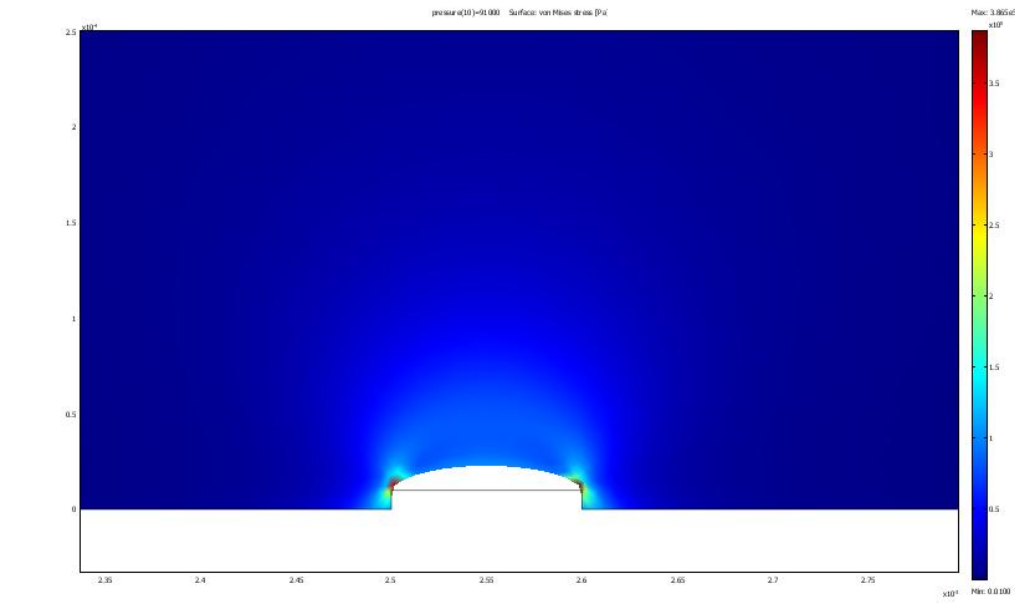
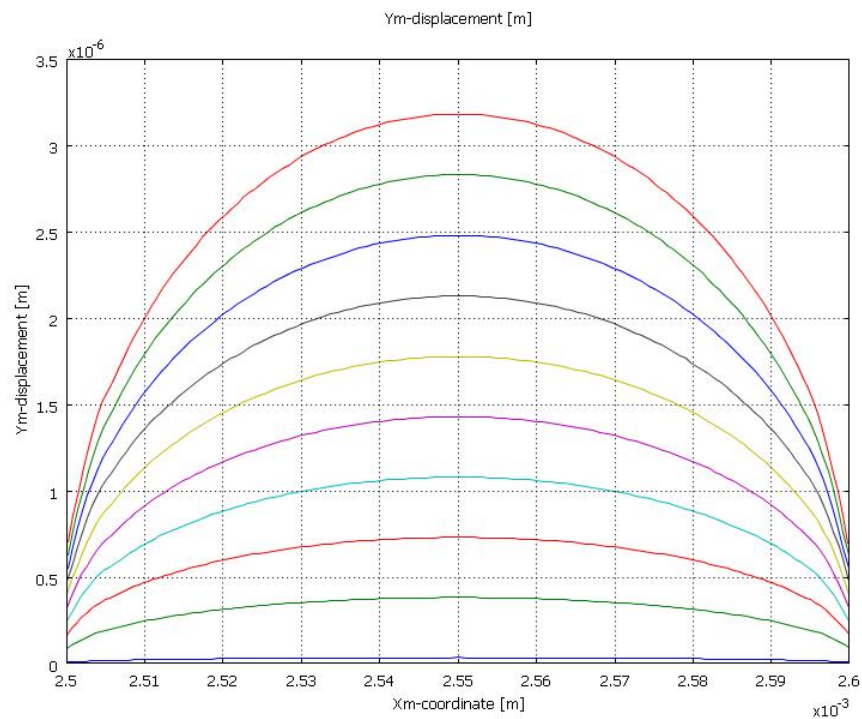


Figure S2. Effective diffusion coefficient measured from spreading of sharp concentration step during flow. Diffusion coefficient is proportional to square of mean velocity of flow, which is coherent with theoretical predictions (Equation 1)



A



B

Figure S3. COMSOL modeling of channel deformation under pressure. (Elastic modulus of PDMS 3MPa). **A)** Deformation of 100 μ m wide and 10 μ m high rectangular channel made in 5mm thick PDMS under pressure 1bar. **B)** Deformation of the ceiling of the channel under pressures 0.1bar to 1bar with 0.1bar step.