



Figure S1. Translucent meshing profiles of the microfluidic structures (A) without and (B) with spheres.

Table S1. Element size parameters in meshing of 3D CFD simulation.

Element Size Parameters	Setting Values
Maximum element size	2.49×10^{-4}
Minimum element size	7.43×10^{-5}
Maximum element growth rate	1.15
Curvature factor	0.6
Resolution of narrow regions	0.7