Supplementary Figure legends

Figure S1. Design of SFI chip platform using computational fluid dynamics (CFD) and fabrication of SFI chip platforms (A) Computational geometry with the generated mesh of SFI main channel for CFD and the hydrodynamic design of the SFI chip at inlet and outlet (B) Simplify the spheroid shape in concave microwell to the modeling shape (C) Dimension of Small, medium, and large size SFI chips. Scal bar: 200 μm (D) Radius, distance between concave wells and depth of concave well. (D: 0.7 mm, R: 0.25 mm, Depth: 0.25 mm).

Figure S2. Measuring positions on SFI chips.

Figure S3. Design of osmotic pumps. The osmotic pump was dipped into the polyethylene glycol (PEG) solution to generate the main driving power of the system.

Figure S4. Cell viability and spheroid formation on the SFI ship.

Movie S5. In silico design of the SFI Chip using CFD for various applications