

## Description of Additional Supplementary Files

**File name:** Supplementary Data 1

**Description:** The source data behind the graphs in the paper.

**File name:** Supplementary Movie 1

**Description:** Video of theoretical result of light-induced assembly of microparticles by optical pressure in microflow channel, where the interparticle binding force is neglected (Cohesion energy density:  $0 \text{ J/m}^3$ , Volume flow rate:  $0.1 \mu\text{L}/\text{min}$ , Laser power:  $530 \text{ mW}$ , Focal point from the bottom of microchannel (F):  $65 \mu\text{m}$ ). This video corresponds to Fig. 4a.

**File name:** Supplementary Movie 2

**Description:** Video of theoretical result of light-induced assembly of microparticles by optical pressure in microflow channel, where the interparticle binding force is strong (Cohesion energy density:  $100 \text{ J/m}^3$ , Volume flow rate:  $0.1 \mu\text{L}/\text{min}$ , Laser power:  $530 \text{ mW}$ , Focal point from the bottom of microchannel (F):  $65 \mu\text{m}$ ). This video corresponds to Fig. 4d.