SUPPLEMENTARY INFORMATION

Movie S1: Microchannel flow of a colloidal suspension with a weak interparticle attraction (c_p = 5 mg/mL). The suspension flows at a volumetric rate of 8 μL/hr in a microchannel with a square cross-sectional area (L = 100μm); movie was acquired 50 μm above the bottom surface of the microchannel (at the midplane) and 20 *mm* downstream from the channel entrance.

Movie S2: Microchannel flow of a colloidal suspension with a strong interparticle attraction (c_p = 25 mg/mL). The suspension flows at a volumetric rate of 8 μL/hr in a microchannel with a square cross-sectional area (L = 100μm); movie was acquired 50 μm above the bottom surface of the microchannel (at the midplane) and 20 *mm* downstream from the channel entrance.

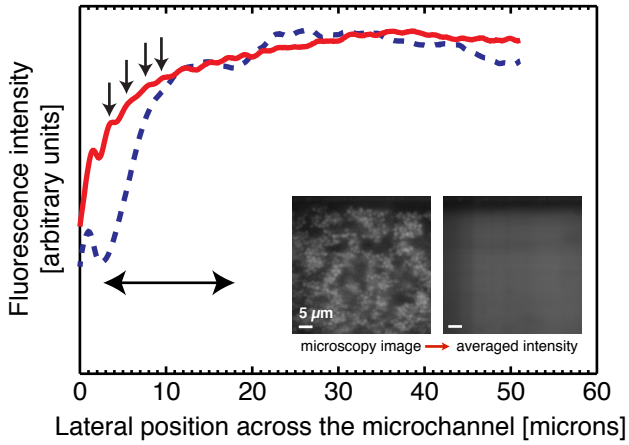

Figure S3: Fluorescence intensity as a function of lateral position for the weakly-attractive suspension (c_p = 5 mg/mL, red solid line) and strongly-attractive suspension (c_p = 25 mg/mL, blue dashed line), acquired at the midplane of the microchannel (50 μm above the bottom surface, z/L = 0.5), acquired at a flow rate of 8 μL/hr. The first maximum in each plot indicates the position of the edge of the microchannel. The periodic maxima in intensity in the profile of the weakly-attractive suspension (indicated by vertical arrows) correspond to layering of particles near the wall; the distance between the first two minima in the profile of the strongly-attractive suspension (indicated by the horizontal arrow) is the characteristic size of the clusters that yield near the wall. Inset: representative microscopy image and averaged image for the c_p = 25 mg/mL sample during flow.