

Electric field directed assembly of high-density microbead arrays†

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Electronic Supplementary Information

Caption for video clip of electric field directed assembly of a microbead array:

10 A video clip of electric-field directed assembly of 0.5 μm streptavidin-coated beads on an array of $\sim 0.6 \mu\text{m}$ wells at a density of ~ 69 million per cm^2 . The playback is approximately real-time and shows the assembly process during the first 15 pulses at 3.0 V DC, a frequency of 1 Hz and a duty cycle of 10%. Real-time imaging was performed on an epifluorescence microscope (DM LFSa, Leica Microsystems, Inc.) with a 40x/0.55 NA objective, and a CCD camera (ORCA-ER, 1024×1344 , $6.45 \times 6.45 \mu\text{m}^2$ pixels, Hamamatsu Photonics). Excitation light was from an Osram 100W HBO mercury arc lamp. The images and movies were recorded with SimplePCI software version 5.3 (Hamamatsu Photonics). The video images were acquired at ~ 4.8 frames/s and
15 converted to an Audio Video Interleave file at 5 frames per second. The movie was compressed and converted to a Windows Media Video file with Windows Movie Maker software version 2.6 (Microsoft Corporation).

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†Electronic Supplementary Information (ESI) available: Video clip of electric field directed assembly of a microbead array.