Supporting Materials for

Vortex-assisted DNA Delivery

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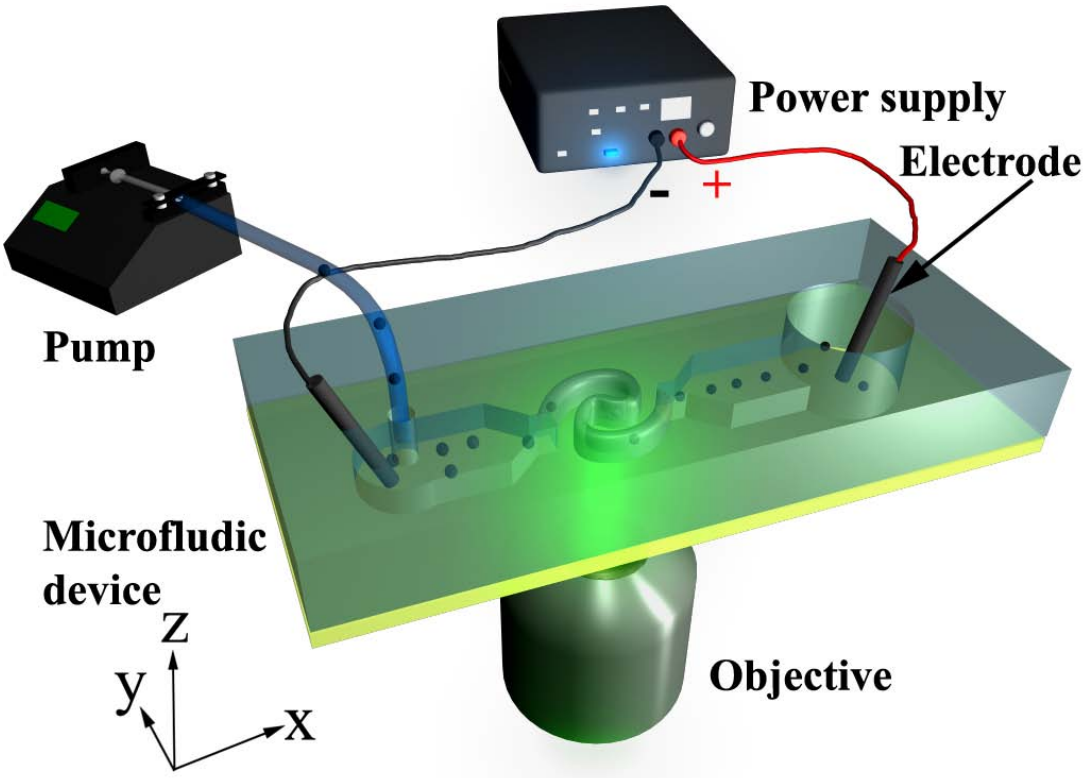

Figure S1. A schematic illustration of the setup of flow-through electroporation. The drawing is not to scale and the layout of the narrow section is simplified for drawing convenience.

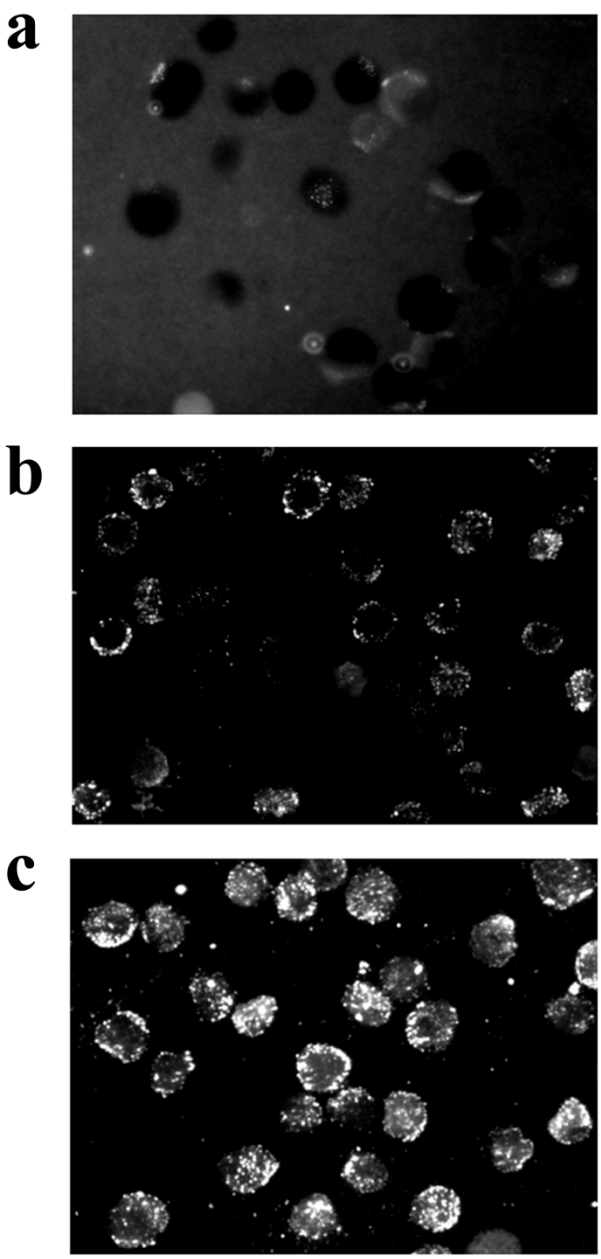

Figure S2 Epifluorescence images of CHO cells (delivered with YOYO-1 labeled plasmid DNA) confirm that the 3D images in Fig.3 in the main text are typical of the cell population. (a) Cells are processed in a flow-through electroporation with a straight narrow section with an electroporation field intensity of 900 V/cm and a flow rate of 6 μl/min (that yields a field duration of 0.5 ms). (b) Cells are processed in a flow-through electroporation device with a straight electroporation section. The flow rate is 150 μl/min and the electroporation field intensity and duration are 700 V/cm and 5 ms, respectively. (c) Cells are processed in a flow-through electroporation device with a spiral electroporation. The flow rate is 150 μl/min and the electroporation field intensity and duration are 700 V/cm and 5 ms, respectively.

Movies (open with QuickTime)

Movie 1 A 3D reconstruction image generated by confocal fluorescence imaging of a cell processed by flow-through electroporation in a straight microchannel (field intensity 900 V/cm, duration 0.5 ms). DNA molecules are fluorescently labeled.

Movie 2 A 3D reconstruction image generated by confocal fluorescence imaging of a cell processed by flow-through electroporation in a straight microchannel (field intensity 700 V/cm, duration 5 ms). DNA molecules are fluorescently labeled.

Movie 3 A 3D reconstruction image generated by confocal fluorescence imaging of a cell processed by flow-through electroporation in a spiral microchannel (field intensity 700 V/cm, duration 5 ms). DNA molecules are fluorescently labeled.