Electronic Supplementary Material (ESI) for RSC Advances.

High throughput imaging cytometer with acoustic focussing

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ELECTRONIC SUPPLEMENTARY INFORMATION (ESI)

Figure 1S shows how our system could be expanded to perform dual colour fluorescence detection.

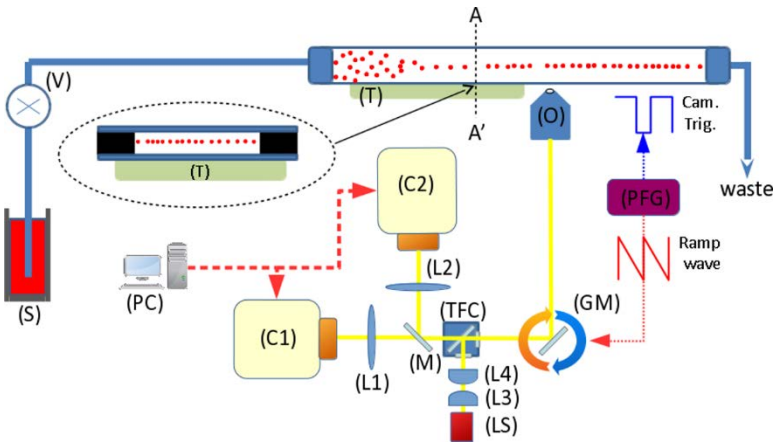

Figure 1S System schematic for dual colour imaging. Components are the same as Figure 1 in the paper, with the addition of: tube lens (L2), dichroic mirror (M), and camera (C2).

The half wave acoustic resonance used to levitate cells and beads in our flow cell was created by a frequency sweep centred around 2.286 MHz. Figure 2S shows the measured electrical impedance of the flow cell, both when the device was empty (only air inside), and filled with water. The water filled device exhibited a strong half-wave resonance at 2.286 MHz.

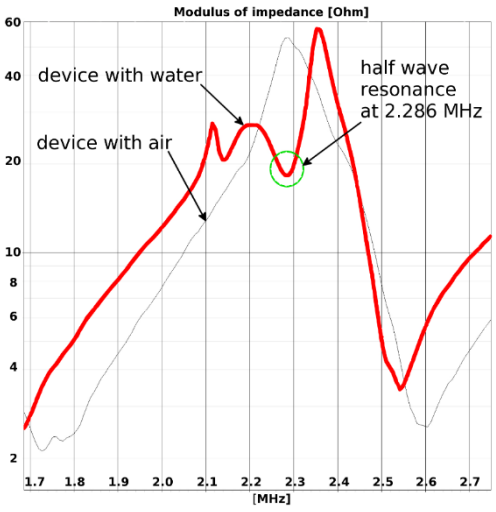

Figure 2S Acoustic impedance measurements of the flow cell.

File “focus.wmv” shows the effect of acoustic focussing as described in Figure 4 in the paper.

File “10um beads 80 fps.avi” shows the imaging of a flow of 10 µm fluorescent beads at a rate of 208,000 beads/second as described for Figure 11 in the paper. The movie is JPEG encoded to reduce file size, and contrast modified to aid visualisation. An unprocessed frame (as recorded by the camera) from this sequence is supplied as “BEAD RAW Image158_01581.tif”.

File “ATDC5 cells 80 fps 35frames.avi” shows the imaging of a flow of ATDC5 cells, with experimental parameters as described for Figure 12a in the paper. The movie is JPEG encoded to reduce file size, and contrast modified to aid visualisation. An unprocessed frame (as recorded by the camera) from this sequence is supplied as “ATDC5 RAW 151_00741.tif”.

File “CLL cells 25 fps 35frames.avi” shows the imaging of a flow of leukaemia cells, with experimental parameters as described for Figure 12b in the paper. The movie is JPEG encoded to reduce file size, and local contrast enhancement applied in order to aid visualisation. An unprocessed frame (as recorded by the camera) from this sequence is supplied as “CLL RAW Image6_01850.tif”.