Supplementary Information
Focalization Performance Study of a Novel Bulk Acoustic Wave Device

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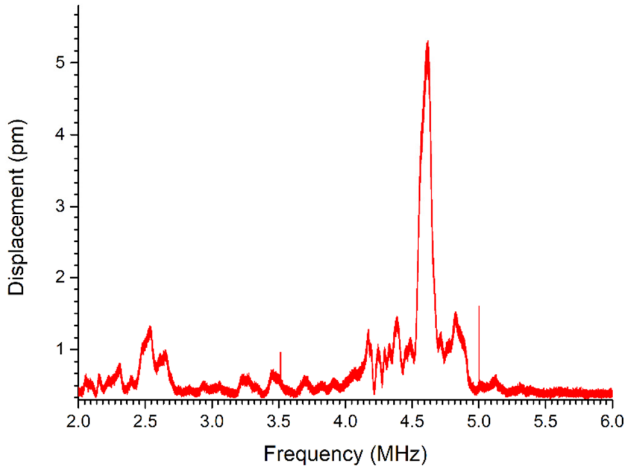

Figure S1. Measurement of the displacement of the piezoelectric element performed throughout the laser-Doppler vibrometer.

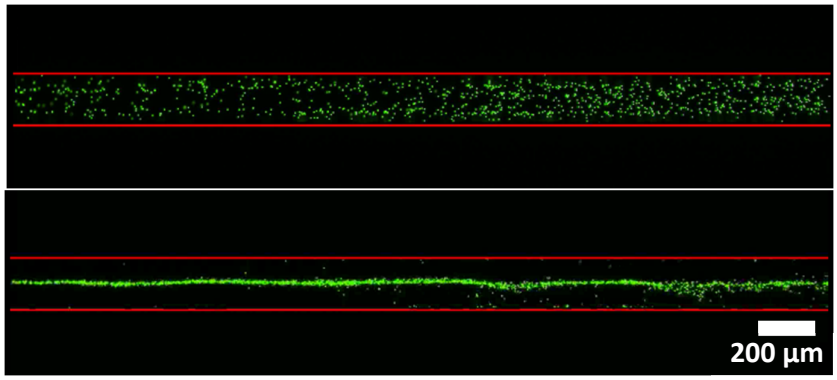

Figure S2. Frame of time-lapse acquired during the acoustophoretic test for the research of the exact resonance frequency of the BAW device. 4MPs concentrated at 5.68×10^{6} particles/mL are stable in water dispersion inside the microfluidic channel. (a) Ultrasound off and (b) Ultrasound on. Images acquired with 4x objective lens with an exposure time of 9.8 ms.

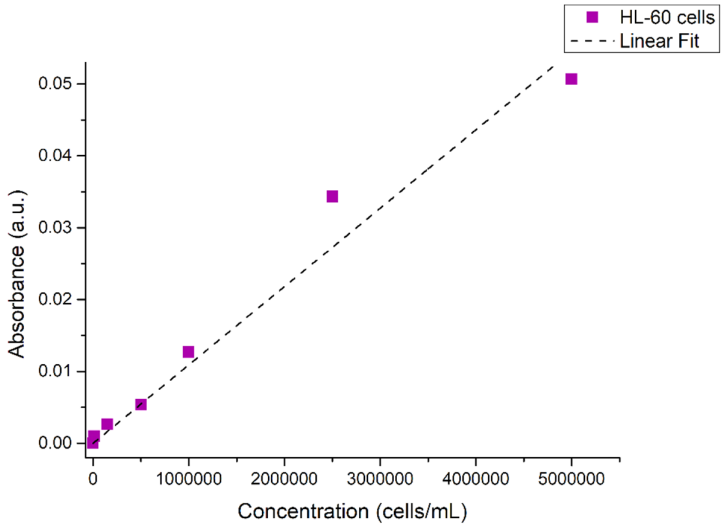

Figure S3. Calibration curve of HL-60 cells with regression equation $y = 1.09 \times 10^{-8}x$.

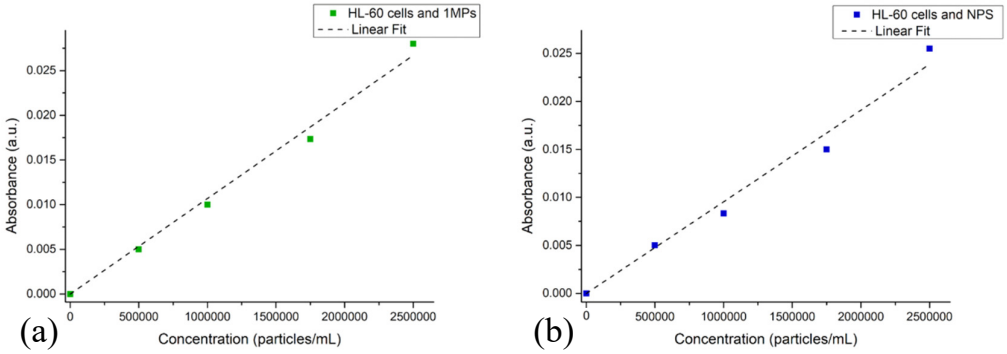

Figure S4. Calibration curves: (a) HL-60 cells and 1MPs (1:1) with regression equation $\boldsymbol{y = 1.07 \times 10^{-8}x}$ and (b) HL-60 cells and NPs (1:1) with regression equation $\boldsymbol{y = 9.55 \times 10^{-9}x}$.

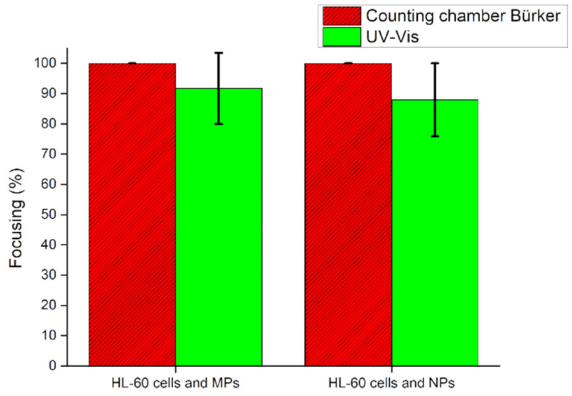

Figure S5. Focusing performance of the BAW device from Bürker counting chamber analysis and UV-Vis characterization: HL-60 cells concentrated at 2.5×10^6 cells/mL mixed with 1MPs concentrated at 2.5×10^5 particles/mL and HL-60 cells concentrated at 2.5×10^6 cells/mL mixed with NPs concentrated at 1.8×10^5 particles/mL. Mixed populations are injected at 3 μL/min when 50.59 V_{pp} is applied to the transducer and the device is actuated at its resonance frequency of 4.623 MHz.