Continuous Analysis of Dye-Loaded, Single Cells on a Microfluidic Chip

Supplemental Data

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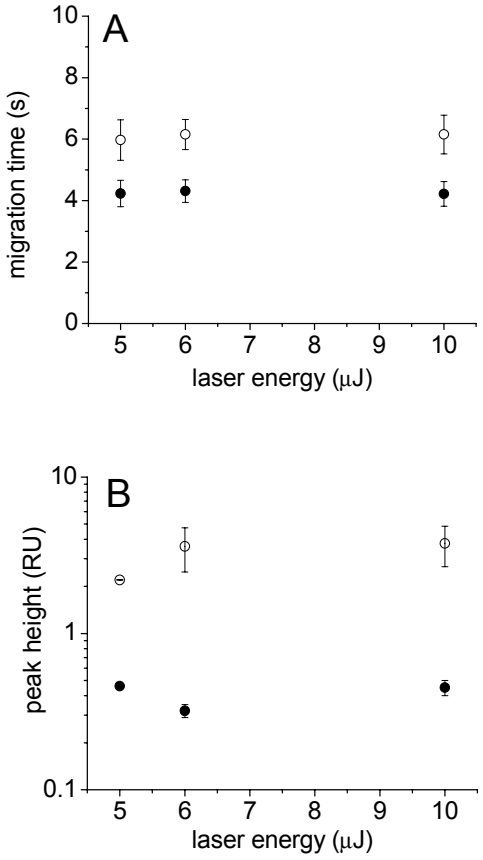
Effect of laser pulse energy for cell lysis on chip separation performance. The laser pulse energy used to lyse cells loaded with FL and FL(COOH) was varied (5 ± 0.05 μJ, 6 ± 0.05 μJ, 10 ± 0.1 μJ) using the optimized chip design and parameters. The migration time of the two analytes obtained from cells was not influenced by the laser pulse energy used to lyse the cells (Figure S1A). The peak height for FL recovered from cells was slightly increased at the higher pulse energies but with greater variability (Figure S1B). In contrast, the peak height for recovered FL(COOH) was not altered by the laser energy. The FWHM for the two fluorophores was not altered by the laser energy within the error of the measurements (Figure S1C). Thus, for the range of laser energies tested, the influence on separation performance of the chip was not substantial.



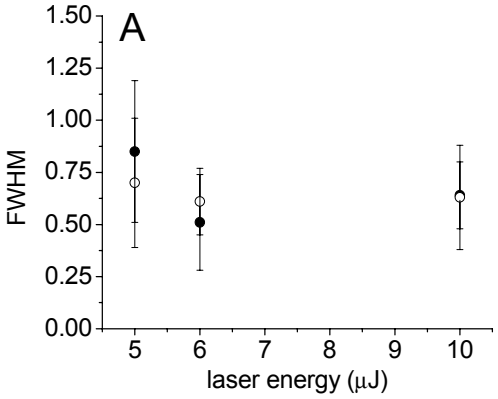


Figure S1. Effect of laser energy on (A) migration time, (B) peak height and (C) peak FWHM of separated cell contents. The closed circles represent FL(COOH) and the open circles FL. The symbols depict the average of the data points while the error bars illustrate the relative standard deviation.