Electronic Supplementary Material (ESI) for Lab on a Chip.

Microfluidics-based single cell analysis reveals drug-dependent motility changes in trypanosomes

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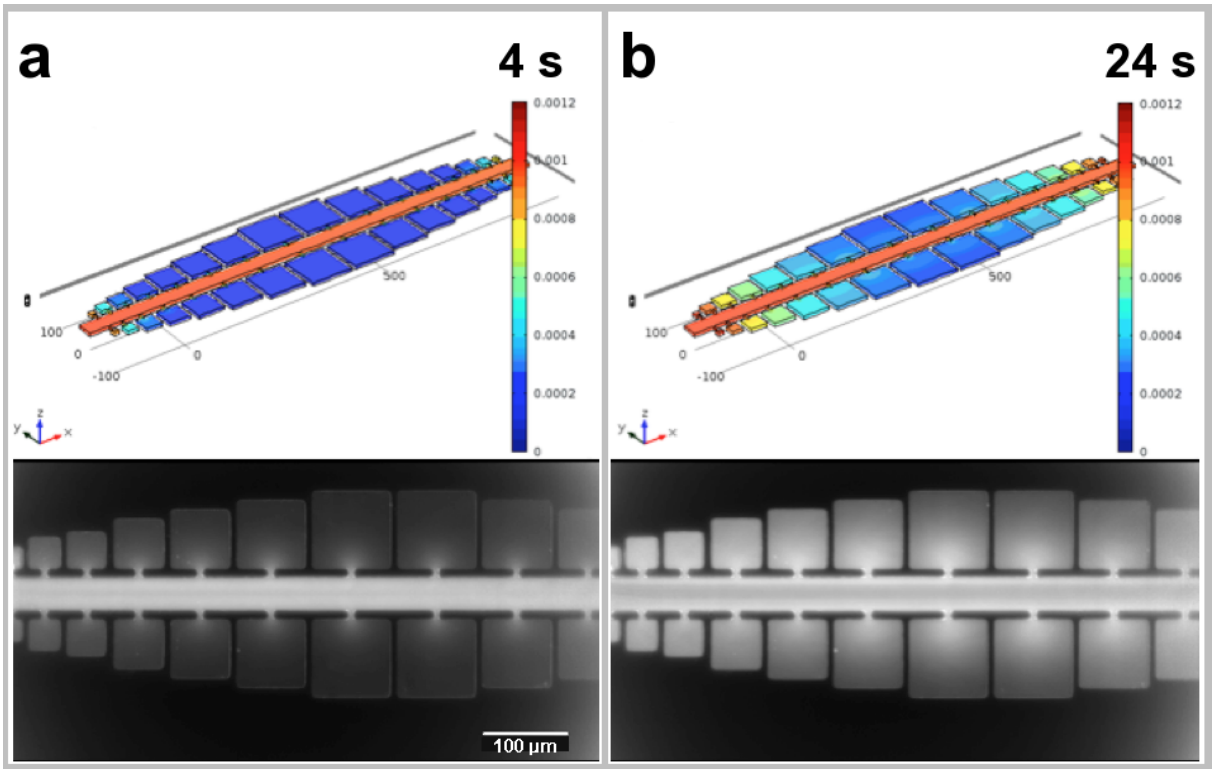
SUPPLIMENTARY INFORMATION



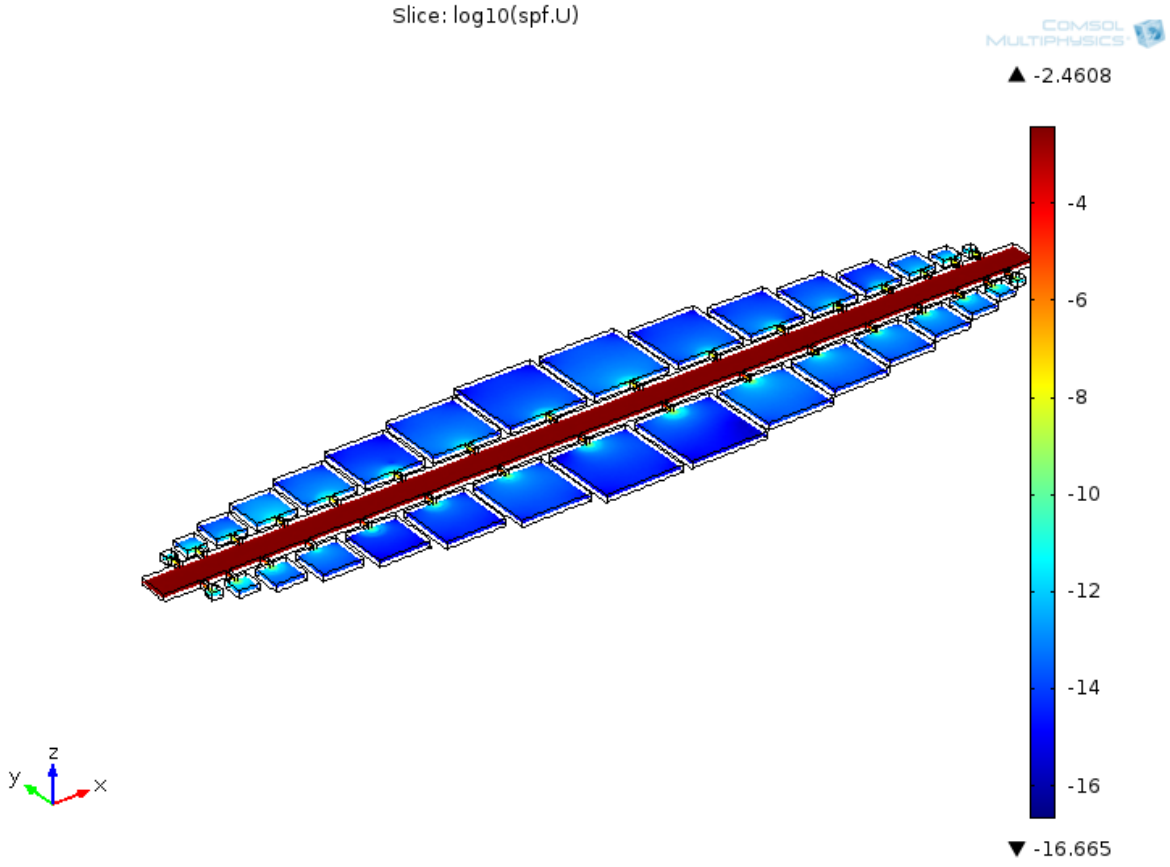


Figure S 1: Comparison of calculated diffusion values with diffusion values for Rhodamine B in the microdevice at different time points. For the experiments, the chamber size was chosen to minimize impact of confinement on the MSD while maintaining full coverage during video recording. The multitude of available chamber sizes ensures versatility and compatibility with different cells and camera systems.

(a,b): CFD simulations of the concentration gradients and fluorescence micrographs at (a) 4 s and (b) 24 s after flushing the device with rhodamine B. The fluorescence images have been adjusted for uneven illumination as stated in supplimentary methods.

(c): CFD simulation of the flow velocities in the device (please note: $\log_{10}$ of the flow velocity is plotted!)

Video S1: Diffusion of a drug inside the introduced device at a main channel velocity of 2000 µm/s. Time-lapse between two images is 2 s, the time is shown in seconds.

Video S2: Effusion of a drug inside the introduced device at a main channel velocity of 2000 µm/s. Time-lapse between two images is 2 s, the time is shown in seconds.

Video S3: Optically trapping a trypanosome and placing it inside a microchamber.

Video S4: *In situ* fixation of trypanosomes with glutaraldehyde in real-time.

Video S5: Paralyzing effect of 2-deoxy-D-glucose on trypanosomes. Video is two times faster than live.

Video S6: Reversible paralysis of a trypanosome with 2-deoxy-*D*-glucose.

Video S7: Disintegration of trypanosomes exposed to suramin.