

Microfluidic stickers for cell- and tissue-based assays in microchannels

Supplemental movies

Movie 1: DRG growth cone showing lamellipodial and filopodial motility in a microfluidic sticker. The mean flow speed was $20 \mu\text{m/s}$. Scale bar, $10 \mu\text{m}$.

Movie 2: A microfluidic sticker with a flow focusing geometry was used to stimulate a single cell spatially and temporally. A stream of rhodamine B imaged by epifluorescence was displaced at a 5Hz frequency.

Supplemental figure

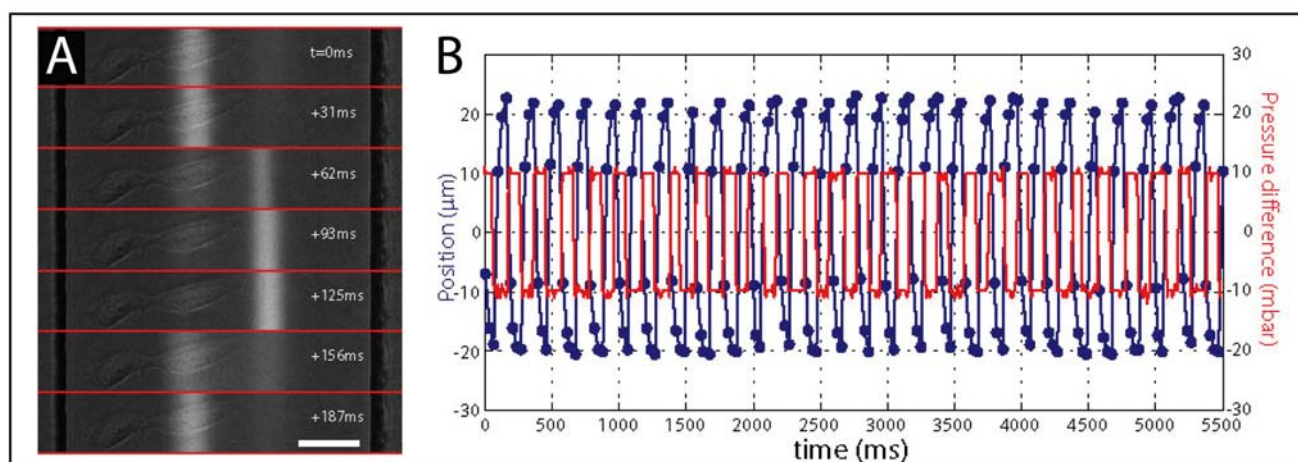


Figure 1: Spatially and temporally controlled stimulations on HeLa cells. (A) The chemical environment of a single HeLa cell is temporally and spatially controlled at a 5Hz frequency and with subcellular resolution. Epifluorescence images of a Rhodamine B stream over HeLa cell over one period of the chemical stimulation. Scale bar, $40 \mu\text{m}$. (B) Plot of the position (in blue) of the centre of the focused Rhodamine B flow (the origin is taken at the centre of the two extreme positions). The real time pressure difference imposed between the two focusing lateral inlets of the device is plotted in red. The position of the flow focusing follows the 5Hz periodic pressure signal.