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Detection of a live cell in a microfluidic system by scanning capacitance microscopy S. Y. SUNG, I. J. YI, Y. J. CHOI, J. Y. KIM, Y.S. KIM, C. J. KANG, Myongji University — In recent years, many studies on the biosensors using a microfluidic system have been performed. The system fabricated with polydimethylsiloxane (PDMS) has many advantages such that it is portable, disposable, cost effective, and automatable. Scanning capacitance microscope (SCM) that has a good capacitance pickup sensor attached to an atomic force microscope (AFM) is capable of measuring the capacitance variation with a resolution of better than 10^{-18}F/V between a conducting tip and the sample. In this work, we present possibility of SCM as a biosensor by measuring a live cell which flows in the microchannel. By measuring the consecutive capacitance line profiles of a cell, which represent the charge distribution of a cell surface resulting from the ion channel or cell activity, we can get more information on the cell analysis and provide one solution for the realization of a lab-on-a-chip.

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