

## Micro & Nanofluidic Applications in Biotechnology

J. K. Chang

School of Electrical Engineering and Computer Science, Seoul National University, Seoul 151-742,

Digital Bio Technology, Co., Seoul 151-742, Korea

E-mail: jkchang@snu.ac.kr

Two of the most promising applications of micro/nanofluidics in biotechnology and medicine are drug discovery and point-of-care diagnostics. Automation, integration, modularization, and parallelization are the key advantages of the miniaturized systems. Recent advances in optical measurement and microfluidic manipulation techniques provide tools for high content screening of living cells in a highly-controlled microenvironment. We can look into multiple events within living cells simultaneously by real-time monitoring and fluorescence measurement at the single-cell level.

Informational changes in real time under an environment analogous to the biological system. This presentation describes fluidics-based platforms enabling single-molecule and single-cell manipulation and detection in liquid with some theoretical and experimental considerations.