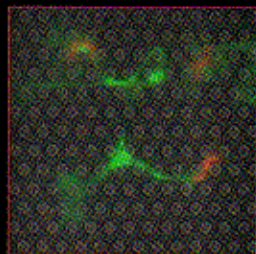


MICROFLUIDICS IN CELL BIOLOGY PART B: MICROFLUIDICS IN SINGLE CELLS



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Microfluidics in Cell Biology brings together leading experts to discuss recent advances in this fascinating and important field of research. Microfluidics refers generally to techniques that allow control of fluids at the micron scale, the natural dimension for single cells and cell assemblies. It has a large spectrum of applications in biology, often grouped under the general terms 'lab-on-a-chip' and 'organ-on-a-chip'. It allows spatial and temporal control of the micro-environment of single cells and cell assemblies, as well as analytical procedures applied to single cells to study their subcellular components. Topics in this second part focus on applications to unicellular organisms (drug delivery and temperature control, H₂O₂ stress on yeasts, resistance and sorting of bacteria), cell migration (immune and cancer cells, guided migration) as well as cell mechanics (size sorting, measure of stiffness, host-microbe interactions, cell confinement).

KEY FEATURES

- State of the art methods for studying single cells and cell assemblies in controlled microenvironments, from yeast and bacteria to mammalian immune and cancer cells.
- Precise control and measure of temperature, drug delivery, geometry and mechanics on single cells
- Devices compatible with live quantitative imaging of single cells and cell assemblies
- Devices optimized for cell sorting, for cell growth, for cell migration and for cell mechanics studies

Cover image: Dendritic cell migrating inside a forest of micro-pillars (picture from M.Piel lab, Franziska Lautenschlaeger)

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