

METHODS IN MOLECULAR BIOLOGY

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Microchip Diagnostics

Methods and Protocols

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Preface

By allowing unprecedented level of miniaturization, parallelization, and integration, microfluidics is increasingly becoming a method of choice to develop new diagnostic tools. Recent advances in microfluidics technology have the potential to revolutionize the field of diagnosis. Researchers have been developing new tools and strategies allowing the highly sensitive detection and fine characterization of biomarkers using cutting-edge developments. However, few of these works really meet the necessary requirements allowing their clear validation as diagnostic tools. This book presents an overview of recent advances in microfluidics for diagnostic purposes with a specific focus on the application side and the pertinence of the developed devices and procedures for improving human health. The aim of this book is to illustrate how microfluidic approaches can meet the requirement of clinical diagnosis based on molecular or cellular biomarkers. As microfluidics has reached an unprecedented level of maturity, the first part of this book is dedicated to the business aspects of microfluidic-based systems for diagnosis. The second part gathers contributions highlighting how versatile microfluidics can be regarding protein bioassay integration. Microfluidic approaches for nucleic analysis based on mono- or diphasic format are reported in the third part. The last part brings together contributions on a more recent field of applications in microfluidics: cell analysis and enrichment.

Paris, France

*Valérie Taly
Jean-Louis Viovy
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