

# Micro and Nano Technologies for Point-of-Care Testing

https://marketpublishers.com/r/M5A3DB95E86EN.html

Date: February 2013 Pages: 0 Price: US\$ 3,040.00 (Single User License) ID: M5A3DB95E86EN

## Abstracts

#### Introduction

Micro and nanotechnologies are set to transform point-of-care diagnostics. Miniaturization of testing methods, advances in lab-on-a-chip microfluidic methodologies, improvements in detection technologies and novel biosensors are leading the way.

#### Features and benefits

Identify micro and nanotechnologies driving the development of next-generation point-of-care diagnostics to benefit from opportunities being created.

Discover which analytes/diseases are currently being targeted by profiled companies to formulate your own diagnostic product development strategies.

Assess the evolving POC testing market with the aid of market forecasts for individual market segments to prepare for future growth in this area.

Forecast key point-of-care testing market segments to 2016.

#### Highlights

Various proprietary technologies identified in this report underpin POC testing products in development. These technologies represent valid alternative approaches to challenges such as multiplexing, liquid transport in miniaturized systems, integration of



assay procedures, and limitations associated with the use of traditional fluorescent labels.

The microfluidic lab-on-a-chip (LoC) is now firmly established as an attractive miniaturized platform for POC testing. Maturing of LoC technologies is stimulating efforts to incorporate miniaturized biosensors into portable LoC systems to accelerate the development of portable and handheld testing systems

Most of the products discussed in this report are being developed for healthcare professional-based testing. Four professional-based POCT market sectors - infectious disease; cardiac marker; coagulation (including pharmacogenomics); and cancer screening/pharmacogenomics - are forecast to grow at CAGRs of 14%, 22%, 19% and 30% respectively.

#### Your key questions answered

Which micro and nano technologies in development offer the attributes of miniat

What drivers and restraints operate in the nascent market for POC testing products based on micro and nanotechnologies?

Who is developing new POC testing products based on micro and nanotechnologies and which clinical applications are they targeting?

How will POC testing products based on micro and nanotechnologies impact areas inadequately served by current products and areas of unmet need?

What are the estimated current market sizes and 5-year growth forecasts for the sectors of the POC testing market currently targeted?



# Contents

#### **EXECUTIVE SUMMARY**

Key findings The effects of evolving diagnostic technologies

#### **CURRENT POCT TECHNOLOGIES AND APPLICATIONS**

Summary Introduction Enabling IVDT technologies Immunoassays Probe-based nucleic acid testing Mass spectrometry Regulation of IVDs Current POCT systems Multi-channel immunoanalyzers Micro- and nanotechnologies for POCT

#### MICRO- AND NANOARRAYS

Summary Introduction Developments in DNA microarrays High density microarrays Low or medium density microarrays Microarray platforms Developments in protein microarrays Focus on detection technologies Label-based technologies Label-free technologies Innovations in nanoarrays Nanofabrication techniques Applications

### MICROFLUIDICS ? BASED LOC SYSTEMS

#### Summary



Mirofluidic devices and technologies Microfluidic NAT systems Integrated LoC commercial systems Microfluidic immunoassays Substrate materials for microfluidic immunoassays Immobilization methods for immunoassays Liquid transport control strategies Micropneumatic pumping Multilayer soft lithography Centrifugal force Phaseguide technology Electrokinetics Electrowetting Other approaches **Detection methods** Optical detection using labels Non-optical label-free technologies

#### **ADVANCES IN BIOSENSORS**

Summary Introduction Advances in optical detection Signal intensification technologies Optical fiber technology Electrochemical sensors **Piezoelectric sensors** Nanomaterial-based biosensors Challenge of non-specific protein adsorption Nanoparticles for sensor devices Quantum dots and gold nanoparticles Magnetic nanoparticles Nanoelectrodes Nanotubes Nanowires Nanopore sensors **Biological nanopores** Solid-state and hybrid nanopores Artificial olfaction sensors



Other sensors

#### **COMPANY PROFILES**

Introduction

- Advanced Liquid Logic
- Overview of company business
- Proprietary micro/nanotechnologies
- POCT products
- Recent POCT-related collaborations
- Akonni Biosystems
- Overview of company business
- Proprietary micro/nanotechnologies
- POCT products
- Recent POCT-related collaborations
- **Applied Nanodetectors**
- Overview of company business
- Proprietary micro/nanotechnologies
- POCT products
- Aquila Diagnostic Systems
- Overview of company business
- Proprietary micro/nanotechnologies
- POCT products
- ArcDia International
- Overview of company business
- Proprietary micro/nanotechnologies
- POCT products
- **BioCartis**
- Overview of company business
- Proprietary micro/nanotechnologies
- Recent POCT-related collaborations
- **BioForce Nanosciences**
- Overview of company business
- Proprietary micro/nanotechnologies
- **POCT** products
- **Bio-Rad Laboratories**
- Company description
- Proprietary micro/nanotechnologies (acquired from QuantaLife)
- POCT products





**Biosurfit** Overview of company business Proprietary micro/nanotechnologies **POCT** products **Biosystems International** Overview of company business Proprietary micro/nanotechnologies POCT products **Recent POCT-related collaborations Cambridge Biomagnetics** Overview of company business Proprietary micro/nanotechnologies POCT products **DNA Electronics** Overview of company business Proprietary micro/nanotechnologies POCT products Recent POCT-related collaborations Epocal Overview of company business Proprietary micro/nanotechnologies POCT products Recent POCT-related collaborations Fluidigm Overview of company business Proprietary micro/nanotechnologies FluimediX Overview of company business Proprietary micro/nanotechnologies POCT products Fluigent Overview of company business Proprietary micro/nanotechnologies **GenMark Diagnostics** Overview of company business Proprietary micro/nanotechnologies POCT products Integrated Nano-Technologies

Overview of company business



Proprietary micro/nanotechnologies POCT products **Kumetrix** Overview of company business Proprietary micro/nanotechnologies POCT products Luminex Corporation Overview of company business Proprietary micro/nanotechnologies POCT products MagArray Overview of company business Proprietary micro/nanotechnologies POCT products **Micronics** Overview of company business Proprietary micro/nanotechnologies POCT products Molecular Vision Overview of company business Proprietary micro/nanotechnologies POCT products NanoIVD Overview of company business Proprietary micro/nanotechnologies **POCT** products Nanomix Overview of company business Proprietary micro/nanotechnologies POCT products Nanosphere

Overview of company business

Proprietary micro/nanotechnologies

POCT products

**NVE** Corporation

Overview of company business

Proprietary micro/nanotechnologies

POCT products

OJ-Bio



Overview of company business

Proprietary micro/nanotechnologies

POCT products

Oxford Nanopore Technologies

Overview of company business

Proprietary micro/nanotechnologies

POCT products

Recent POCT-related collaborations

### **PLC Diagnostics**

Overview of company business

Proprietary micro/nanotechnologies

POCT products

**Royal Philips Electronics** 

Overview of company business

Proprietary micro/nanotechnologies

POCT products

Recent POCT-related collaborations

**PLC Diagnostics** 

Overview of company business

Proprietary micro/nanotechnologies

POCT products

Sirigen

Overview of company business

Proprietary micro/nanotechnologies

POCT products

T2 Biosystems

Overview of company business

Proprietary micro/nanotechnologies

POCT products

TIRF Technologies

Overview of company business

Proprietary micro/nanotechnologies

POCT products

Vivacta

Overview of company business

Proprietary micro/nanotechnologies

POCT products

### MARKET TRENDS AND FORECASTS



Summary Technologies poised t-transform POCT The future: early treatment and prevention Characteristics of the IVD industry Challenges for developers of novel POCT products POCT market forecasts by selected application

Infectious disease testing

Cardiac marker testing

Coagulation testing and pharmacogenomics

Cancer screening and pharmacogenomics

#### APPENDIX

Contributors Managing analyst Scope Methodology Glossary/abbreviations Bibliography/references Websites of companies mentioned in this report Disclaimer



# **Tables**

#### TABLES

Table: Selected companies developing microfluidic POC lab-on-a-chip systems

Table: Selected companies developing biosensors for POCT applications

Table: Global POCT market forecasts by reviewed segment, 2011–16



# **Figures**

#### **FIGURES**

Figure: Schematic of a typical lateral flow device Figure: Customizable features of the ESE-Quant lateral flow system Figure: Akonni Systems' TruArray gel microarray Figure: PLC Diagnostics' In-plane parallel scanning Figure: A typical lab-on-a-chip for POC testing with associated instrumentation Figure: PCR analysis on Advanced Liquid Logic's electrowetting chip Figure: Schematic of a lab-on-a-chip for fluorescence analysis Figure: Molecular Vision's polymer detection system and credit card-sized LoC device Figure: NVE Corporation's spintronic sensor Figure: Schematic of a Surface Generated Acoustic Wave (SGAW) sensor



#### I would like to order

Product name: Micro and Nano Technologies for Point-of-Care Testing Product link: <u>https://marketpublishers.com/r/M5A3DB95E86EN.html</u>

> Price: US\$ 3,040.00 (Single User License / Electronic Delivery) If you want to order Corporate License or Hard Copy, please, contact our Customer Service: <u>info@marketpublishers.com</u>

### Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <u>https://marketpublishers.com/r/M5A3DB95E86EN.html</u>

To pay by Wire Transfer, please, fill in your contact details in the form below:

First name: Last name: Email: Company: Address: City: Zip code: Country: Tel: Fax: Your message:

\*\*All fields are required

Custumer signature \_\_\_\_\_

Please, note that by ordering from marketpublishers.com you are agreeing to our Terms & Conditions at <u>https://marketpublishers.com/docs/terms.html</u>

To place an order via fax simply print this form, fill in the information below and fax the completed form to +44 20 7900 3970