

Innovative Molecular Diagnostic Technologies and Emerging Markets

https://marketpublishers.com/r/I64CC012AA5EN.html

Date: November 2012 Pages: 1050 Price: US\$ 19,040.00 (Single User License) ID: I64CC012AA5EN

Abstracts

This unique seven-country report contains 1,050 pages, 96 tables, and is designed to help current suppliers and potential market entrants identify and evaluate major business opportunities emerging in the molecular diagnostics market during this decade. The report explores business and technological trends in the US, five major European countries, (France, Germany, Italy, Spain, UK) and Japan; provides 5- and 10-year test volume/sales forecasts; estimates shares of leading competitors; compares features of major analyzers; profiles leading market players; and identifies specific product and business opportunities facing instrument and consumable suppliers during the next ten years. The molecular diagnostics market is unquestionably the most rapidly growing segment of the in vitro diagnostics industry. The next ten years will witness significant developments in reagent systems and automation, as well as introduction of a wide range of new products that will require innovative marketing approaches. The rate of market penetration into routine clinical laboratories, however, will depend on the introduction of cost-effective and automated systems with amplification methods. In order to successfully capitalize on the opportunities presented by the molecular diagnostics market, many companies are already exploiting new DNA probe and biochip technologies as corporate strategic assets, managed in support of business and marketing strategies. Integrating new technology planning with business and corporate strategies will be one of the most challenging tasks for diagnostics companies during the next ten years.



Contents

INTRODUCTION

WORLDWIDE MARKET AND TECHNOLOGY OVERVIEW

A. DNA Sequencing

- 1. Introduction
- 2. Sequencing Methods
- 3. Autoradiography
- 4. The Human Genome Project
- 5. Sequencing Automation
- 6. Image Scanners
- 7. Fluorescent Detection
- 8. Gene Profiling
- 9. Gene Expression
- 10. Polymorphism Screening
- 11. Protein Interaction Networks
- B. DNA And RNA Probe Technology
 - 1. Basic Principles
 - 2. Probe Preparation
 - 3. The DNA Probe Test
 - a. Sample Preparation
 - b. Hybridization
 - c. Separation
 - d. Detection/Measurement
 - 4. Test Formats
 - a. Filter Hybridization
 - b. Southern Blot
 - c. Northern Blot
 - d. In Situ Hybridization
 - e. Others
 - 5. Labeling Techniques
 - 6. Amplification Methods
 - Polymerase Chain Reaction
 - **Temperature Cyclers**
 - PCR Variations
 - Immuno-PCR
 - QC-PCR



DAP-PCR Strand Displacement Activation TMA Ligase Chain Reaction **Branched DNA** Hybridization Protection Assay Nucleic-Acid Sequence-Based Amplification Self-Sustained Sequence Replicase Others Ampliprobe CAR CAS CPT Dendritic Polymer Technology ISO-CR LAT **Probe Networks** RAMP **Repair Chain Reaction Rolling Circles** Sequence Independent Gene Amplification Sequence Initiation Reaction SISPA Solid Phase Amplification C. Detection Technologies 1. Radioactive Methods a. Overview b. Major Isotopes P-32 S-35 H-3 I-125 2. Non-Isotopic Methods a. Enzymatic Labels b. Chemical Labeling Indirect Chemical Labeling **Direct Chemical Labeling**

- c. Fluorescence
- d. Chemiluminescence



- e. Electrical Conductivity
- D. Instrumentation Review
 - 1. Abbott LCx
 - 2. Beckman Coulter/Biomek FK
 - 3. Becton Dickinson SDA
 - 4. Bio-Rad GeneScope
 - 5. Gen-Probe Tigris
 - 6. Roche Cobas Amplicor
 - 7. Tecan LS Series
- E. Biochips: Genosensors, Microarrays, and Labs-on-the-Chip
- Liquid Transportation and Mixing
- Separation
- Reaction
- Detection
- F. Pharmacogenomics
- G. Major Applications
 - 1. Microbiology/Infectious Diseases
 - a. Overview
 - b. Major Infectious Diseases
 - AIDS
 - Structure and Composition
 - Classification
 - **AIDS Origins**
 - Animal Lentivirus Systems
 - Virus Receptors
 - HIV Infections in Humans
 - Pathogenesis and Pathology
 - CD4T Lymphocytes and Memory Cells
 - Monocytes and Macrophages
 - Lymphoid Organs
 - Neural Cells
 - Viral Coinfections
 - **Clinical Findings**
 - Plasma Viral Load
 - Pediatric AIDS
 - Neurologic Disease
 - **Opportunistic Infections**
 - Cancer
 - Immunity



Virus Isolation Serology Viral Nucleic Acid/Antigen Detection Epidemiology Worldwide Spread of AIDS United States Routes of Transmission **DNA** Probes Overview Quantitative PCR In Situ PCR **Needed Improvements** Viral Load/Drug Resistance Testing Genotype and Phenotype Testing **Blood Banking Considerations** Adenovirus Background **Diagnostic Tests** Vaccines and Drugs Adeno-Associated Viruses (AAV) Anthrax/Bacillus Anthracis Background **Diagnostic Tests O Vaccines and Drugs Babesiosis** Background **BEA and Other Bartonella Diseases** Background **Diagnostic Tests O Vaccines and Drugs** Chagas Disease Background Campylobacter Background **Diagnostic Tests - Culture Identification** Vaccines and Drugs Chlamydia Background Chlamydia psittaci Chlmaydia pneumoniae

Chlamydia trachomatis



Diagnostic Tests O Vaccines and Drugs Creutzfeldt-Jakob's Disease Background **Blood Transmission** Diagnostic Tests O Major Commercial and Academic Players Bayer **Disease Sciences/Bio Tec Global** Imperial College School of Medicine **Ortho-Clinical Diagnostics - Pall ProMetic Life Sciences** Proteome Sciences/Idexx **Q-One Biotech** Serono U.S. Agricultural Research Service Drugs Vaccines Cytomegalovirus Background Chorioretinitis Gastrointestinal Central Nervous System Disease Diagnostic Tests O Vaccines and Drugs Ebola Virus Background Epidemiology **Clinical Syndromes** Diagnostic Tests O Vaccines and Drugs EchoVirus Background Acute Aseptic Meningitisis Encephalitis **Exanthems Respiratory Disease Myopericarditis** Neonatal Infections Diagnostic Tests O Vaccines and Drugs Encephalitis Background Diagnostic Tests O Vaccines and Drugs Enteroviruses Background **Diagnostic Tests - Viral Isolation and Identification** Antibody Tests



Vaccines and Drugs Epstein-Barr Virus Background Diagnostic Tests O Vaccines and Drugs Gonorrhea Background **Diagnostic Tests O Vaccines and Drugs Hepatitis** Hepatitis A Hepatitis **B** Structure and Composition Replication Hepatitis C Hepatitis D (Delta) Hepatitis E Hepatitis G Hepatitis Infections Pathology **Clinical Findings** Laboratory Tests Hepatitis A Hepatitis B Hepatitis C Hepatitis D Hepatitis E Virus-Host Immune Reactions Epidemiology Hepatitis A Hepatitis **B** Hepatitis C Hepatitis D (Delta) Vaccines and Drugs Herpes Simplex Virus Background Diagnostic Tests O Vaccines and Drugs Legionella Background Diagnostic Tests O Vaccines and Drugs Lyme Disease Background **Clinical Description Clinical Case Definition** Laboratory Criteria for Diagnosis **Case Classification Diagnostic Tests O Vaccines and Drugs**



Malaria

Mycoplasma

Background

Ureaplasma Urealyticum & Mycoplasma

Hominis

Diagnostic Tests

Vaccines and Drugs

Papillomaviruses/HPV

Background

HPV in Cancer

Cervical Neoplasm

Diagnostic Tests

Vaccines and Drugs

Prevention

Parvovirus B19

Background

Microbiology

Epidemiology

Clinical Syndromes

Erythema Infectiosum (Slapped Cheek)

Adult Polyarthropathy

Transient Aplastic Crisis

Transient Pancytopenia

Red Cell Aplasia in Immunocompromised

Perinatal Infections

Diagnostic Test O Vaccines and Drugs

Pneumonia

Background

Diagnostic Tests

Vaccines and Drugs

Polyomaviruses

Background

Diagnostic Tests

Vaccines and Drugs

Salmonellosis

Background

Diagnostic Tests

Vaccines and Drugs

Shigellosis





Background **Diagnostic Tests** Vaccines and Drugs Streptococci Background **Diagnostic Tests** Vaccines and Drugs - Group A Streptococci Group B Streptococci Toxoplasmosis Background **Diagnostic Tests O Vaccines and Drugs Tuberculosis** Background **Diagnostic Tests - Microscopic Characteristics Cultural Characteristics** Skin Tests - MDRTB Vaccines and Drugs West Nile Virus Background **Clinical Syndromes Diagnostic Tests O Vaccines and Drugs** Yersinia Background **Diagnostic Tests** Vaccines and Drugs Antibiotic Susceptibility 2. Cancer Testing a. Overview b. Major Cancer Types Prostate Lung Colon and Rectum Breast Skin Uterine Leukemia Oral c. Oncogenes Abl/abl-bcr





AIB1

BCL-2

BRCA1

CD44

C-fos C-myb

C-myc

CYP17

Erb-B

HPC1

N-myc

P40

- P51
- P53
- PIK3CA
- PTI-1
- Ras
- Reg

Sis Src

- 3. Genetic Diseases
 - a. Overview
 - b. Nucleic Acid Amplification
 - c. Chromosome Imaging
 - d. Genomics Technologies
 - e. Proteomics Technologies
 - f. Current Pharmacogenomic Tests
 - g. Future Pharmacogenomic Testing
 - h. Major Diseases
 - Achondroplasia
 - Autosomal Dominant Polycystic Kidney
 - Disease
 - Cancer
 - Cosmetogenomics
 - Cystic Fibrosis
 - Down's Syndrome
 - Duchenne and Becker Muscular Dystrophy
 - Factor V (Leiden)
 - Factor IX Deficiency



- Fragile X Syndrome
- Heart Disease
- Hemochomatosis
- Hemophilia
- Huntington's Disease
- Maternal-Fetal Incompatibility
- Multiple Endocrine Neoplasia
- Phenylketonuria (PKU)
- Polycystic Kidney Disease (PKD)
- Prenatal Screening
- Retinitis Pigmentosa
- Retinoblastoma
- Sickle Cell Anemia
- Spinal Muscular Atrophy
- Vitamin B12 Metabolism
- i. Social Issues and Concerns
- 4. Forensic Testing
- a. Overview
- b. Multilocus and Single Locus Probes
- Multilocus Probes
- Single Locus Probes
- PCR and RFLP
- c. The FBI
- d. DNA Profile Data Banks
- U.S.A.

U.K.

- e. Judicial Implementation
- f. Major Crime Categories
- g. Factors Contributing to the DNA Probe Market Expansion
 - Technology Availability

Use of Hair as Evidence

- h. Wildlife Forensics
- 5. Paternity Testing/HLA Typing
- 6. Other Applications
 - a. Disease Susceptibility Testing
- b. Cardiovascular Diseases
- c. Diabetes
- d. Alzheimer's Disease
- e. Periodontal Disease



- f. Plasma Purification
- g. Organ Transplantation
- h. Water Contamination
- i. Other
- H. Competing/complementing Technologies
 - 1. Monoclonal Antibodies/Immunoassays
 - 2. RNA Probes
 - 3. Two-Dimensional Electrophoresis
 - 4. Flow Cytometry I. Worldwide Market Overview
 - 1. Business Environment
 - 2. Market Structure
 - 3. Market Size and Growth

FRANCE

- A. Executive Summary
- B. Business Environment
- C. Market Structure
- D. Market Size, Growth And Major Suppliers' Sales And Market Shares

GERMANY

- A. Executive Summary
- B. Business Environment
- C. Market Structure
- D. Market Size, Growth And Major Suppliers' Sales And Market Shares

ITALY

- A. Executive Summary
- B. Business Environment
- C. Market Structure
- D. Market Size, Growth And Major Suppliers' Sales And Market Shares

JAPAN

- A. Executive Summary
- B. Business Environment
- C. Market Structure



D. Market Size, Growth And Major Suppliers' Sales And Market Shares

SPAIN

- A. Executive Summary
- B. Business Environment
- C. Market Structure
- D. Market Size, Growth And Major Suppliers' Sales And Market Shares

U.K.

- A. Executive Summary
- B. Business Environment
- C. Market Structure
- D. Market Size, Growth And Major Suppliers' Sales And Market Shares

U.S.A.

- A. Executive Summary
- B. Business Environment
 - 1. Health Care Expenditures
 - 2. Cost Consciousness
 - 3. Reimbursement
 - 4. Industry Consolidation
 - 5. Managed Care
 - a. PPO
 - b. HMO
 - 6. Hospitals
 - 7. Admissions
 - 8. Length of Stay
 - 9. Industry Diversification
 - 10. Physician Demographics
 - 11. Population Aging
 - a. Chronic Illness
 - b. Disease Incidence
 - c. Susceptibility to latrogenesis
 - d. Multiple Illness Cases
 - 12. Laboratory Regulations
 - 13. FDA Reform



C. Market Structure

- 1. Hospitals
- 2. Commercial/Private Laboratories
- 3. Blood Banks
- D. Market Size, Growth and Major Suppliers' Sales and Market Shares

MAJOR PRODUCT DEVELOPMENT OPPORTUNITIES

- A. Instrumentation
- B. Reagent Kits and Test Systems/panels
- C. Computers, Software and Automation
- **D. Auxiliary Products**

DESIGN CRITERIA FOR DECENTRALIZED TESTING PRODUCTS

ALTERNATIVE MARKET PENETRATION STRATEGIES

- A. Internal Development
- B. Collaborative Arrangements
- C. University Contracts
- D. Distribution Strategies For Decentralized Testing Markets
 - 1. Marketing Approaches
 - 2. Product Complexity
 - 3. Customer Preference
 - 4. Established Suppliers
 - 5. Emerging Suppliers
 - 6. Major Types Of Distributors
 - 7. Market Segmentation

POTENTIAL MARKET ENTRY BARRIERS AND RISKS

- A. Market Maturity
- **B.** Cost Containment
- C. Competition
- D. Technological Edge And Limitations
- E. Patent Protection
- F. Regulatory Constraints
- G. Decentralized Testing Market Challenges



COMPETITIVE PROFILES

Abbott Affymetrix Agilent Applied Gene Technologies Arca Beckman Coulter/Danaher **Becton Dickinson Biokit BioMerieux Bio-Rad** Biotest Caliper Cepheid Decode Diadexus Eiken Enzo **Exact Sciences** Fujirebio Gen-Probe Hologic Illumina Innogenetics/Solvay **Kreatech** Li-Cor Biosciences Life Technologies **Monogram Biosciences Myriad Genetics** Nanogen/Elitech **Novartis Orchid CellMark Ortho-Clinical Diagnostics - Proteome Sciences** Qiagen Roche Scienion Sequenom Shimadzu



Siemens Sierra Molecular Takara Bio Tecan Group

APPENDIXES

Appendix I: Major Universities and Research Centers Developing Molecular Diagnostic Technology Appendix II: Glossary of Terms Appendix III: Currency Exchange Rates



List Of Tables

LIST OF TABLES

Major Companies Developing or Marketing AIDS Molecular Diagnostic And Other Direct Identification Tests

Major Companies Developing or Marketing Adenovirus Molecular Diagnostic And Other Direct Identification Tests

Major Companies Developing or Marketing Campylobacter Molecular Diagnostic And Other Direct Identification Tests

Major Companies Developing or Marketing Chlamydia Molecular Diagnostic And Other Direct Identification Tests

Major Companies Developing or Marketing CMV Molecular Diagnostic And Other Direct Identification Tests

Major Companies Developing or Marketing EBV Molecular Diagnostic And Other Direct Identification Tests

Major Companies Developing or Marketing Gonorrhea Molecular Diagnostic And Other Direct Identification Tests

Companies Developing or Marketing Hepatitis Molecular Diagnostic And Other Direct Identification Tests

Major Companies Developing or Marketing Herpes Molecular Diagnostic And Other Direct Identification Tests

Major Companies Developing or Marketing Legionella Molecular Diagnostic And Other Direct Identification Tests

Major Companies Developing or Marketing Lyme Disease Molecular Diagnostic And Other Direct Identification Tests

Major Companies Developing or Marketing Mycoplasma Molecular Diagnostic And Other Direct Identification Tests

Major Companies Developing or Marketing Papilloma Virus Molecular Diagnostic And Other Direct Identification Tests

Major Companies Developing or Marketing Pneumonia Molecular Diagnostic And Other Direct Identification Tests

Major Companies Developing or Marketing Salmonella Molecular Diagnostic And Other Direct Identification Tests

Major Companies Developing or Marketing Shigella Molecular Diagnostic And Other Direct Identification Tests

Major Companies Developing or Marketing Streptococci Molecular Diagnostic And Other Direct Identification Tests

Major Companies Developing or Marketing Toxoplasmosis Molecular Diagnostic And



Other Direct Identification Tests

Major Companies Developing or Marketing Tuberculosis Molecular Diagnostic And Other Direct

Identification Tests Oncogenes Potential Application in Cancer Diagnosis

Major Companies Developing or Marketing Cancer Molecular Diagnostic Tests

Major Companies Developing or Marketing Molecular Diagnostic Test For Genetic Diseases

Worldwide, Laboratories Performing DNA Sequencing By Country

Worldwide, Molecular Diagnostics Market Potential Laboratory Universe by Country

Worldwide, Molecular Diagnostic Test Volume Forecast By Country

Worldwide, Molecular Diagnostics Market Forecast by Country

Summary Table France, Molecular Diagnostic Test Volume And Sales Forecast by Major Application

France, Laboratories Performing DNA Sequencing By Market Segment

France, Molecular Diagnostics Market Potential Laboratory Universe by Market Segment

France, Molecular Diagnostic Test Volume Forecast By Major Application

France, Major Infectious Disease Molecular Diagnostics Test Volume Forecast

France, Infectious Disease Screening NAT Volume Forecast

France, Molecular Diagnostics Market Forecast By Major Application

France, Infectious Disease Screening NAT Reagent Market Forecast by Test France,

Molecular Diagnostics Market By Major Supplier

France, HIV/Hepatitis NAT Market Reagent Sales By Major Supplier

Summary Table Germany, Molecular Diagnostics Test Volume And Sales Forecast by Major Application

Germany, Laboratories Performing DNA Sequencing by Market Segment

Germany, Molecular Diagnostics Market Potential Laboratory Universe by Market Segment

Germany, Molecular Diagnostics Test Volume Forecast By Major Application Germany, Major Infectious Disease Molecular Diagnostics Test Volume Forecast Germany, Infectious Disease Screening

NAT Volume Forecast Germany, Molecular Diagnostics Market Forecast By Major Application

Germany, Infectious Disease Screening NAT Reagent Market Forecast by Test Germany, Molecular Diagnostics Market by Major Supplier

Germany, HIV/Hepatitis NAT Market Reagent Sales by Major Supplier

Summary Table Italy, Molecular Diagnostics Test Volume And Sales Forecast by Major Application

Italy, Laboratories Performing DNA Sequencing by Market Segment



Italy, Molecular Diagnostics Market Potential Laboratory Universe by Market Segment Italy, Molecular Diagnostics Test Volume Forecast By Major Application Italy, Major Infectious Disease Molecular Diagnostics Test Volume Forecast Italy, Infectious Disease Screening NAT Volume Forecast Italy, Molecular Diagnostics Market Forecast By Major Application Italy, Infectious Disease Screening Nat Reagent Market Forecast by Test Italy, Molecular Diagnostics Market By Major Supplier Italy, HIV/Hepatitis NAT Market By Major Supplier Summary Table Japan, Molecular Diagnostics Test Volume And Sales Forecast by Major Application Japan, Laboratories Performing DNA Sequencing by Market Segment Japan, Molecular Diagnostics Market Potential Laboratory Universe by Market Segment Japan, Molecular Diagnostics Test Volume Forecast By Major Application Japan, Major Infectious Disease Molecular Diagnostics Test Volume Forecast Japan, Infectious Disease Screening NAT Volume Forecast Japan, Molecular Diagnostics Market Forecast By Major Application Japan, Infectious Disease Screening Nat Reagent Market Forecast by Test Japan, Molecular Diagnostics Market By Major Supplier Japan, HIV/Hepatitis NAT Market Reagent Sales by Major Supplier Summary Table Spain, Molecular Diagnostics Test Volume And Sales Forecast by Major Application Spain, Laboratories Performing DNA Sequencing by Market Segment Spain, Molecular Diagnostics Market, Potential Laboratory Universe by Market Segment Spain, Molecular Diagnostics Test Volume Forecast by Major Application Spain, Major Infectious Disease Molecular Diagnostics Test Volume Forecast Spain, Infectious Disease Screening NAT Volume Forecast Spain, Molecular Diagnostics Market Forecast By Major Application Spain, Infectious Disease Screening Nat Reagent Market Forecast by Test Spain, Molecular Diagnostics Market By Major Supplier Spain, HIV/Hepatitis NAT Market Reagent Sales by Major Supplier Summary Table U.K., Molecular Diagnostics Test Volume And Sales Forecast by Major Application U.K., Laboratories Performing Dna Sequencing by Market Segment U.K., Molecular Diagnostics Market Potential Laboratory Universe by Market Segment U.K., Molecular Diagnostics Test Volume Forecast By Major Application U.K., Major Infectious Disease Molecular Diagnostics Test Volume Forecast U.K., Infectious Disease Screening NAT Volume Forecast U.K., Molecular Diagnostics Market Forecast By Major Application

U.K., Infectious Disease Screening NAT Reagent Market Forecast by Test



U.K., Molecular Diagnostics Market by Major Supplier

Summary Table U.S.A., Molecular Diagnostics Test Volume And Sales Forecast by Major Application

U.S.A., Laboratories Performing DNA Sequencing by Market Segment

U.S.A., Molecular Diagnostics Market, Potential Laboratory Universe by Market Segment

- U.S.A., Molecular Diagnostics Test Volume Forecast By Major Application
- U.S.A., Major Infectious Disease Molecular Diagnostics Test Volume Forecast
- U.S.A., Infectious Disease Screening NAT Volume by Test Forecast
- U.S.A., Molecular Diagnostics Market Forecast By Major Application
- U.S.A., Infectious Disease Screening Nat Reagent Market Forecast by Test
- U.S.A., Molecular Diagnostics Market by Major Supplier
- U.S.A., HIV/Hepatitis C NAT Market Reagent Sales By Major Supplier
- U.S.A., West Nile Virus NAT Market Reagent Sales By Major Supplier



I would like to order

Product name: Innovative Molecular Diagnostic Technologies and Emerging Markets Product link: <u>https://marketpublishers.com/r/I64CC012AA5EN.html</u>

> Price: US\$ 19,040.00 (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/I64CC012AA5EN.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