



MEDICAL DEVICES



PHARMACEUTICALS



CHEMICALS



FOOD & BEVERAGE



ELECTRONICS

Table of Contents and List of Tables

Copyright VENTURE PLANNING GROUP
This material is confidential for use by our clients only
and may not be reprinted or reproduced.

VPG Publications, Consulting, Clients ***www.VPGcorp.com***

VPG Market Research Reports ***www.VPGMarketResearch.com***

Partner Reports ***www.LeadingMarketResearch.com***

VENTURE PLANNING GROUP 1271 Avenue of the Americas, Suite 4300 New York, NY 10020
Phone + 1 212 564 2838 Fax + 1 212 564 8133 ***reports@vpgcorp.com***

Table of Contents

I. Introduction

II. Major Product Development Opportunities

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

III. Design Criteria for Decentralized Testing Products

IV. Alternative Market Penetration Strategies

- A. Internal Development
- B. Collaborative Arrangements
- C. University Contracts
- D. Distribution Strategies for Decentralized Testing Markets

V. 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

VI. Market and Technology Review

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

Table of Contents (continued)

B. DNA and RNA Probe Technologies

1. Basic Principles
2. Probe Preparation
3. The DNA Probe Test
4. Test Formats
5. Labeling Techniques
6. Amplification Methods

C. Detection Technologies

1. Radioactive Methods
 - a. Overview
 - b. Major Isotopes
2. Non-Isotopic Methods
 - a. Enzymatic Labels
 - b. Chemical Labeling
 - c. Fluorescence
 - d. Chemiluminescence
 - e. Electrical Conductivity

D. Molecular Diagnostic Instrumentation Review

1. Abbott LCx
2. Beckman Coulter/Biomek FK
3. BD Viper System with XTR Technology
4. BD Innova
5. Becton Dickinson SDA
6. bioMerieux NucliSENS easyMAG
7. bioMerieux NucliSENS easyQ and MiniMAG
8. Bio-Rad GeneScope
9. Cepheid GeneXpert
10. Curetis Unyvero
11. GenMark Dx eSensor XT-8
12. Hologic/Gen-Probe Panther
13. Hologic/Gen-Probe Tigris/DTS
14. HTG Molecular Edge
15. Life Technologies QuantStudio Dx
16. Qiagen QIA Symphony RGQ
17. Roche Cobas Amplicor
18. Roche Cobas TaqMan 48
19. Roche Cobas TaqMan
20. Roche Cobas TaqMan AmpliPrep

Table of Contents (continued)

21. Roche LighCycler 480
22. Roche Cobas 4800
23. Roche Cobas s 201
24. Siemens Versant
25. Tecan LS Series

E. Biochips: Genosensors, Microarrays, 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/HIV
- Adenovirus
- Aeromonads
- Anthrax/Bacillus Anthracis
- Arboviruses
- Babesiosis
- Bacillary Epithelioid Angiomatosis (BEA), other Bartonella (Rochalimaea)
- Blastocystis Hominis
- Brucella
- Campylobacter
- Candida
- Chagas Disease
- Chancroid
- Chlamydia
- Clostridium Difficile
- Coronaviruses
- Coxsackieviruses
- Creutzfeldt-Jakob's Disease
- Cryptosporidium Parvum
- Cyclospora Cayetanensis
- Cytomegalovirus
- Ebola Virus
- E. Coli

Table of Contents (continued)

- EchoVirus
- Encephalitis
- Enteroviruses
- Epstein-Barr Virus
- Giardia Lamblia
- Gonorrhea
- Granuloma Inguinale
- Hantavirus
- Helicobacter Pylori
- Hepatitis
- Herpes Simplex Virus
- Human Herpes Virus-6 (HHV-6)
- Influenza Viruses
- Legionella
- Lyme Disease
- Lymphogranuloma Venereum (LGV)
- Malaria
- Measles (Rubeola)
- Meningitis
- Microsporidium
- Mononucleosis
- Mumps
- Mycoplasma
- Papillomaviruses
- Parvovirus B19
- Pneumonia
- Polyomaviruses
- Pseudomonas Aeruginosa
- Rabies
- Respiratory Syncytial Virus (RSV)
- Rhinoviruses
- Rotavirus
- Rubella
- Salmonellosis
- Septicemia
- Shigellosis
- Staphylococcus Aureus
- Streptococci
- Syphilis
- Toxoplasmosis
- Trichomonas Vaginalis
- Tuberculosis
- Vibrio

Table of Contents (continued)

- West Nile Virus
- Yersina

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

Table of Contents (continued)

- 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
 - Hemochromatosis
 - 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
 - c. DNA Profile Data Banks
 - d. Judicial Implementation
 - e. Major Crime Categories
 - f. Factors Contributing to the DNA Probe Market Expansion
 - Technology Availability
 - Use of Hair as Evidence
 - g. Wildlife Forensics
5. Paternity Testing/HLA Typing
6. Other Applications
- a. Disease Susceptibility Testing
 - b. Cardiovascular Diseases
 - c. Diabetes
 - d. Alzheimer's Disease

Table of Contents (continued)

- e. Periodontal Disease
- f. Plasma Purification
- g. Organ Transplantation
- h. Water Contamination
- i. Other

H. Competing/complementing

- 1. Monoclonal Antibodies/Immunoassays
- 2. RNA Probes
- 3. Two-Dimensional Electrophoresis
- 4. Flow Cytometry

VII. Country Analyses: Volume and Sales Forecasts--Infectious Diseases, Genetic Diseases, Cancer, Forensic and Paternity Testing

- Australia
- Bangladesh
- China
- Hong Kong
- India
- Indonesia
- Japan
- Malaysia
- Myanmar
- New Zealand
- Pakistan
- Philippines
- Singapore
- South Korea
- Taiwan
- Thailand
- Vietnam

Table of Contents (continued)

VIII. Competitive Assessments

- Abbott
- Affymetrix/Thermo Fisher
- Agilent Technologies
- Applied Gene Technologies
- Arca Biopharma
- Beckman Coulter/Danaher
- Becton Dickinson
- Biokit
- bioMerieux
- Bio-Rad
- Biotest
- CellMark Forensics/LabCorp
- Cepheid
- Decode Genetics
- Diadexus
- Eiken
- Elitech Group
- Enzo
- Exact Sciences
- Fujirebio
- Grifols
- Hologic/Gen-Probe
- Illumina
- Kreatech/Leica
- Li-Cor Biosciences
- Monogram Biosciences/LabCorp
- Myriad Genetics
- Ortho-Clinical Diagnostics
- Perkin Elmer/Caliper
- Proteome Sciences
- Qiagen
- Roche
- Scienion
- Sequenom
- Shimadzu
- Siemens
- Sierra Molecular
- Takara Bio
- Tecan Group

Table of Contents (continued)

IX. Appendix: Major Universities and Research Centers Developing Innovative Molecular Diagnostic Technologies and Products

List of Tables

Australia
Molecular Diagnostics Test Volume and Sales Forecasts by Application

Australia
Molecular Diagnostics Test Volume Forecasts by Application

Australia
Major Infectious Disease Test Volume Forecasts by Assay

Australia
Molecular Diagnostics Market Forecasts by Application

Australia
Major Infectious Disease Diagnostics Market Forecasts by Assay

Australia
Major Supplier Sales and Market Shares

Bangladesh
Molecular Diagnostics Test Volume and Sales Forecasts by Application

Bangladesh
Molecular Diagnostics Test Volume Forecasts by Application

Bangladesh
Major Infectious Disease Test Volume Forecasts by Assay

Bangladesh
Molecular Diagnostics Market Forecasts by Application

Bangladesh
Major Infectious Disease Diagnostics Market Forecasts by Assay

Bangladesh
Major Supplier Sales and Market Shares

China
Molecular Diagnostics Test Volume and Sales Forecasts by Application

China
Molecular Diagnostics Test Volume Forecasts by Application

China
Major Infectious Disease Test Volume Forecasts by Assay

List of Tables (continued)

China
Molecular Diagnostics Market Forecasts by Application

China
Major Infectious Disease Diagnostics Market Forecasts by Assay

China
Major Supplier Sales and Market Shares

Hong Kong
Molecular Diagnostics Test Volume and Sales Forecasts by Application

Hong Kong
Molecular Diagnostics Test Volume Forecasts by Application

Hong Kong
Major Infectious Disease Test Volume Forecasts by Assay

Hong Kong
Molecular Diagnostics Market Forecasts by Application

Hong Kong
Major Infectious Disease Diagnostics Market Forecasts by Assay

Hong Kong
Major Supplier Sales and Market Shares

India
Molecular Diagnostics Test Volume and Sales Forecasts by Application

India
Molecular Diagnostics Test Volume Forecasts by Application

India
Major Infectious Disease Test Volume Forecasts by Assay

India
Molecular Diagnostics Market Forecasts by Application

India
Major Infectious Disease Diagnostics Market Forecasts by Assay

India
Major Supplier Sales and Market Shares

List of Tables (continued)

Indonesia

Molecular Diagnostics Test Volume and Sales Forecasts by Application

Indonesia

Molecular Diagnostics Test Volume Forecasts by Application

Indonesia

Major Infectious Disease Test Volume Forecasts by Assay

Indonesia

Molecular Diagnostics Market Forecasts by Application

Indonesia

Major Infectious Disease Diagnostics Market Forecasts by Assay

Indonesia

Major Supplier Sales and Market Shares

Japan

Molecular Diagnostics Test Volume and Sales 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 by Major Application

Japan

Major Infectious Disease Test Volume by Assay

Japan

Major Infectious Disease Test Volume by Method

Japan

Molecular Diagnostics Market by Major Application

Japan

Molecular Diagnostics Market

Estimated Sales and Market Shares of Major Suppliers

List of Tables (continued)

Japan

Major Infectious Disease Diagnostics Market by Assay

Japan

AIDS Testing Market Estimated Sales by Major Supplier

Japan

Chlamydia Testing Market Estimated Sales by Major Supplier

Japan

CMV Testing Market Estimated Sales by Major Supplier

Japan

Gonorrhea Testing Market Estimated Sales by Major Supplier

Japan

Hepatitis Testing Market Estimated Sales by Major Supplier

Japan

Hepatitis C Testing Market Estimated Sales by Major Supplier

Japan

Herpes Testing Market Estimated Sales by Major Supplier

Japan

Meningitis Testing Market Estimated Sales by Major Supplier

Japan

Mycoplasma Testing Market Estimated Sales by Major Supplier

Japan

Pneumonia Testing Market Estimated Sales by Major Supplier

Japan

Shigella Testing Market Estimated Sales by Major Supplier

Malaysia

Molecular Diagnostics Test Volume and Sales Forecasts by Application

Malaysia

Molecular Diagnostics Test Volume Forecasts by Application

Malaysia

Major Infectious Disease Test Volume Forecasts by Assay

List of Tables (continued)

Malaysia
Molecular Diagnostics Market Forecasts by Application

Malaysia
Major Infectious Disease Diagnostics Market Forecasts by Assay

Malaysia
Major Supplier Sales and Market Shares

Myanmar
Molecular Diagnostics Test Volume and Sales Forecasts by Application

Myanmar
Molecular Diagnostics Test Volume Forecasts by Application

Myanmar
Major Infectious Disease Test Volume Forecasts by Assay

Myanmar
Molecular Diagnostics Market Forecasts by Application

Myanmar
Major Infectious Disease Diagnostics Market Forecasts by Assay

Myanmar
Major Supplier Sales and Market Shares

New Zealand
Molecular Diagnostics Test Volume and Sales Forecasts by Application

New Zealand
Molecular Diagnostics Test Volume Forecasts by Application

New Zealand
Major Infectious Disease Test Volume Forecasts by Assay

New Zealand
Molecular Diagnostics Market Forecasts by Application

New Zealand
Major Infectious Disease Diagnostics Market Forecasts by Assay

New Zealand
Major Supplier Sales and Market Shares

List of Tables (continued)

Pakistan

Molecular Diagnostics Test Volume and Sales Forecasts by Application

Pakistan

Molecular Diagnostics Test Volume Forecasts by Application

Pakistan

Major Infectious Disease Test Volume Forecasts by Assay

Pakistan

Molecular Diagnostics Market Forecasts by Application

Pakistan

Major Infectious Disease Diagnostics Market Forecasts by Assay

Pakistan

Major Supplier Sales and Market Shares

Philippines

Molecular Diagnostics Test Volume and Sales Forecasts by Application

Philippines

Molecular Diagnostics Test Volume Forecasts by Application

Philippines

Major Infectious Disease Test Volume Forecasts by Assay

Philippines

Molecular Diagnostics Market Forecasts by Application

Philippines

Major Infectious Disease Diagnostics Market Forecasts by Assay

Philippines

Major Supplier Sales and Market Shares

Singapore

Molecular Diagnostics Test Volume and Sales Forecasts by Application

Singapore

Molecular Diagnostics Test Volume Forecasts by Application

Singapore

Major Infectious Disease Test Volume Forecasts by Assay

List of Tables (continued)

Singapore
Molecular Diagnostics Market Forecasts by Application

Singapore
Major Infectious Disease Diagnostics Market Forecasts by Assay

Singapore
Major Supplier Sales and Market Shares

South Korea
Molecular Diagnostics Test Volume and Sales Forecasts by Application

South Korea
Molecular Diagnostics Test Volume Forecasts by Application

South Korea
Major Infectious Disease Test Volume Forecasts by Assay

South Korea
Molecular Diagnostics Market Forecasts by Application

South Korea
Major Infectious Disease Diagnostics Market Forecasts by Assay

South Korea
Major Supplier Sales and Market Shares

Taiwan
Molecular Diagnostics Test Volume and Sales Forecasts by Application

Taiwan
Molecular Diagnostics Test Volume Forecasts by Application

Taiwan
Major Infectious Disease Test Volume Forecasts by Assay

Taiwan
Molecular Diagnostics Market Forecasts by Application

Taiwan
Major Infectious Disease Diagnostics Market Forecasts by Assay

Taiwan
Major Supplier Sales and Market Shares

List of Tables (continued)

Thailand
Molecular Diagnostics Test Volume and Sales Forecasts by Application

Thailand
Molecular Diagnostics Test Volume Forecasts by Application

Thailand
Major Infectious Disease Test Volume Forecasts by Assay

Thailand
Molecular Diagnostics Market Forecasts by Application

Thailand
Major Infectious Disease Diagnostics Market Forecasts by Assay

Thailand
Major Supplier Sales and Market Shares

Vietnam
Molecular Diagnostics Test Volume and Sales Forecasts by Application

Vietnam
Molecular Diagnostics Test Volume Forecasts by Application

Vietnam
Major Infectious Disease Test Volume Forecasts by Assay

Vietnam
Molecular Diagnostics Market Forecasts by Application

Vietnam
Major Infectious Disease Diagnostics Market Forecasts by Assay

Vietnam
Major Supplier Sales and Market Shares

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 Bartonella
Molecular Diagnostic and Other Direct Identification Tests

List of Tables (continued)

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

Major Companies Developing or Marketing Candida
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 Clostridium
Molecular Diagnostic and Other Direct Identification Tests

Major Companies Developing or Marketing Coronavirus
Molecular Diagnostic and Other Direct Identification Tests

Major Companies Developing or Marketing Cryptosporidium
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 Echovirus Molecular
Diagnostic and Other Direct Identification Tests

Major Companies Developing or Marketing Enterovirus 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 Giardia
Molecular Diagnostic and Other Direct Identification Tests

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

Major Companies Developing or Marketing Hantavirus
Molecular Diagnostic and Other Direct Identification Tests

Major Companies Developing or Marketing Helicobacter
Molecular Diagnostic and Other Direct Identification Tests

Major Companies Developing or Marketing Hepatitis
Molecular Diagnostic and Other Direct Identification Tests

List of Tables (continued)

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

Major Companies Developing or Marketing Influenza
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 Measles
Molecular Diagnostic and Other Direct Identification Tests

Major Companies Developing or Marketing Meningitis
Molecular Diagnostic and Other Direct Identification Tests

Major Companies Developing or Marketing Mononucleosis
Molecular Diagnostic and Other Direct Identification Tests

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

Major Companies Developing or Marketing RSV
Molecular Diagnostic and Other Direct Identification Tests

Major Companies Developing or Marketing Rotavirus
Molecular Diagnostic and Other Direct Identification Tests

Major Companies Developing or Marketing Rubella
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 Septicemia
Molecular Diagnostic and Other Direct Identification Tests

List of Tables (continued)

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 Syphilis
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 Trichomonas
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 Tests for Genetic Diseases