

## **Global Molecular Diagnostics Market - Technologies, Products, Applications and End-Use Sectors**

Market Report | 2025-02-12 | 340 pages | Industry Experts

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### **Report description:**

Global Molecular Diagnostics Market Trends and Outlook

Molecular diagnostics is an advanced field that uses molecular biology technologies to analyze DNA, RNA, and proteins to detect, monitor, and personalize treatment. Identifying genetic markers enables early diagnosis, risk assessment, and targeted therapy across various medical applications such as infectious diseases, oncology, genetic testing, pharmacogenomics, neurological disorders, and cardiovascular disease. Key technologies include Polymerase Chain Reaction (PCR), DNA Sequencing and New Generation Sequencing (NGS), Isothermal Nucleic Acid Amplification (INAAT), In Situ Hybridization (ISH), DNA Microarrays, and Mass Spectrometry (MS), Transcription-Mediated Amplification (TMA) which increase the accuracy of pathogen detection, genetic mutations, and disease biomarkers. It plays an essential role in diagnosing COVID-19, HIV, tuberculosis, and antibiotic infections, as well as in identifying cancer-related mutations such as BRCA1/2, EGFR, and KRAS for precise oncology. In addition, it promotes genetic screening for inherited disorders, optimizing pharmacogenomic drugs, diagnosis of neurological and cardiovascular diseases, and prenatal testing (NIPT). The market is driven by innovations in reagents, automated tools, bioinformatics powered by AI, and high-performance sequencing platforms, which increase diagnostic efficiency.

Global Molecular Diagnostics market size is estimated at US\$18 billion in 2024 and projected to post a CAGR of 10% between 2024 and 2030 to reach US\$31.7 billion in 2030. The molecular diagnostics market is growing rapidly, driven by a growing need for faster and more accurate disease detection. With the increasing number of infectious diseases like HIV, tuberculosis, and respiratory infections, healthcare providers rely on molecular tests to quickly identify pathogens and guide treatment. Cancer diagnostics is another major driver, as these tests help detect genetic mutations like BRCA1/2, EGFR, and KRAS, allowing doctors to create personalized treatment plans. Progress in PCR, Next-Generation Sequencing (NGS), and DNA Microarrays made testing more accurate, inexpensive, and widely available.

Governments and private organizations invest considerably in genomic and precision medicine, further supporting innovations. There is also a growing shift toward at-home and point-of-care testing, which is more accessible diagnostics. In addition to infectious diseases and cancer, molecular diagnosis improves early detection of neurological disorders, cardiovascular diseases,

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and genetic conditions. As the global population rises, the demand for early and targeted treatment increases. Also, new technologies such as AI-driven bioinformatics and portable diagnostic devices are making testing faster and more efficient. Due to its expansion role in drug development and personalized medicine, molecular diagnostics is set to a healthcare revolution and offers better and more adapted treatment for patients globally.

#### Molecular Diagnostics Regional Market Analysis

North America leads the global molecular diagnostics market with an estimated 39.2% market share in 2024, driven by technological advancements, robust healthcare infrastructure, and substantial healthcare expenditures. The United States dominates due to significant investments in research and development, supportive regulations, and a high prevalence of chronic diseases such as cancer and cardiovascular issues. Companies benefit from well-established distribution networks and advantageous reimbursement policies, facilitating the swift adoption of innovative diagnostic tools. In contrast, the Asia Pacific region is projected to be the fastest-growing market, with a projected CAGR of 11.3% during the forecast period 2024-2030, driven by increased healthcare funding, population growth, and a rise in disease occurrences. Countries like China, India, and Japan are enhancing healthcare accessibility, while government programs and local manufacturing initiatives contribute to cost-effectiveness. The rising demand for personalized medicine, Next-Generation Sequencing (NGS), and diagnostics powered by AI is propelling the market's growth. The region's commitment to early disease detection and enhanced healthcare infrastructure positions it as a significant contributor to the global molecular diagnostics market.

#### Molecular Diagnostics Market Analysis by Product

The Reagents and Kits segment dominates the molecular diagnostics market, capturing an estimated 61.3% share in 2024, attributed to their extensive application in testing for infectious diseases, oncology, and genetic diagnostics. Their shorter replacement cycles, flexibility, and vital role in molecular testing ensure consistent demand. Innovations in assay development, increasing awareness for early disease detection, and increased healthcare integration further boost their adoption. Conversely, the Instruments segment is anticipated to record the fastest CAGR of 11.7% from 2024 to 2030, driven by the increasing demand for advanced equipment like PCR machines, NGS systems, and mass spectrometers. The growing use of point-of-care testing, automation, and high-throughput technologies is broadening market prospects, especially in oncology, infectious diseases, and genetic diagnostics.

#### Molecular Diagnostics Market Analysis by Technology

Polymerase Chain Reaction (PCR) segment is the largest technology market, with an estimated 45.2% share in 2024 due to its outstanding accuracy, sensitivity, and versatility in identifying and measuring nucleic acids. PCR continues to be considered the standard for detecting infectious diseases and conducting genetic tests, with innovations such as real-time PCR (qPCR) and digital PCR (dPCR) further improving its capabilities. The increasing use of portable and automated PCR systems in point-of-care environments contributes to its growth. On the other hand, the DNA Sequencing & Next-Generation Sequencing (NGS) segment is anticipated to experience the fastest growth rate with a CAGR of 12.8% during the analysis period 2024-2030, owing to its expanding significance in cancer diagnostics, personalized medicine, and genomics research. The rising need for molecular-targeted therapies and advanced sequencing technologies is driving the use of NGS in clinical and research settings.

#### Molecular Diagnostics Market Analysis by Application

The infectious disease diagnostics segment dominates the molecular diagnostics applications market with a 49.3% share in 2024, driven by the increasing incidence of infectious diseases such as respiratory infections, sexually transmitted diseases (STD), and emerging viral outbreaks like COVID-19. The need for quick and accurate diagnostic solutions has spurred the use of PCR and next-generation sequencing (NGS), facilitating precise pathogen identification and effective disease management. Worldwide health initiatives and progress in multiplex PCR and sequencing technologies further bolster market growth. In contrast, the oncology segment is expected to register the fastest growth rate with a CAGR of 12.1%, driven by the rising demand for early cancer detection, personalized treatments, and therapies based on biomarkers, making it a significant contributor to future market growth.

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## Molecular Diagnostics Market Analysis by End-User

The hospitals and clinics segment is anticipated to hold the largest share of the molecular diagnostics end-user market, with a share of 52.5% in 2024, spurred by the increasing number of patients needing molecular evaluation for diseases such as cancer and infectious diseases. Hospitals benefit from centralized molecular testing, advanced diagnostic facilities, and specialized knowledge, which facilitates efficient diagnoses and personalized treatment strategies. On the other hand, the diagnostic laboratories segment is projected to record the fastest growth rate with a CAGR of 10.3% from 2024 to 2030, driven by substantial testing volumes and specialized expertise. Laboratories are progressively integrating molecular diagnostics due to their capacity to provide accurate and high-throughput testing for conditions like genetic disorders, cancer, and infectious diseases. The continuous demand for centralized testing services, along with advances in automation and high-throughput technologies, is projected to support ongoing growth in this segment.

## Molecular Diagnostics Market Report Scope

This global report on Molecular Diagnostics analyzes the global and regional markets based on product, technology, application, and end-user for the period 2021-2030 with forecasts from 2024 to 2030 in terms of value in US\$. In addition to providing profiles of major companies operating in this space, the latest corporate and industrial developments have been covered to offer a clear panorama of how and where the market is progressing.

## Key Metrics

Historical Period: 2021-2023

Base Year: 2024

Forecast Period: 2024-2030

Units: Value market in US\$

Companies Mentioned: 30+

## Molecular Diagnostics Market by Geographic Region

?☐North America (The United States, Canada, and Mexico)

?☐Europe (Germany, France, United Kingdom, Italy, Spain, and Rest of Europe)

?☐Asia-Pacific (Japan, China, India, South Korea, and Rest of Asia-Pacific)

?☐Rest of World (Brazil, Argentina, Israel, and Other Rest of World Countries)

## Molecular Diagnostics Market by Product

?☐Reagents and Kits

?☐Instruments

?☐Software & Services

## Molecular Diagnostics Market by Technology

?☐Polymerase Chain Reaction (PCR)

?☐DNA Sequencing & Next-Generation Sequencing (NGS)

?☐Isothermal Nucleic Acid Amplification (INAAT)

?☐In Situ Hybridization (ISH)

?☐DNA Microarrays

?☐Other Technologies (Including Mass Spectrometry (MS), Transcription Mediated Amplification (TMA), CRISPR-based Diagnostics, and Nanotechnology)

## Molecular Diagnostics Market by Application

?☐Infectious Disease Diagnostics

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- ?□Oncology Testing
- ?□Genetic Testing
- ?□Pharmacogenomics
- ?□Neurological Disorders Diagnostics
- ?□Cardiovascular Disease Diagnostics
- ?□Other Applications (Including Reproductive Health & Prenatal Testing, Transplant Diagnostics, Microbiome Analysis, Autoimmune Disease Diagnostics, and others)

Molecular Diagnostics Market by End-user

- ?□Hospitals and Clinics
- ?□Diagnostics Laboratories
- ?□Other End-Users (Including Research Institutes & Academic Institutions, Pharmaceutical & Biotechnology Companies, Contract Research Organizations (CROs), and Blood Banks)

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- Agendia NV
- Agilent Technologies Inc.
- Becton, Dickinson and Company
- Biomerieux SA
- Bio-Rad Laboratories, Inc.
- Bruker Corporation
- Danaher Corporation
- DiaSorin S.p.A
- DNA Diagnostics Center
- Exact Sciences Corporation
- F. Hoffmann-La Roche AG
- Grifols, S.A.
- Hologic, Inc.
- Illumina, Inc.
- Kaneka Eurogentec S.A.
- Laboratory Corporation of America Holdings (LabCorp)
- Merck KGaA
- Myriad Genetics, Inc.
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