

Oncology Precision Medicine & Liquid Biopsy Market Forecasts to 2034 - Global Analysis By Biomarker Type (Circulating Tumor DNA (ctDNA), Circulating Tumor Cells (CTCs), Exosomes & Extracellular Vesicles, RNA Biomarkers and Protein Biomarkers), Cancer Type, Technology, Application, End User and By Geography

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Abstracts

According to Statistics MRC, the Global Oncology Precision Medicine & Liquid Biopsy Market is accounted for \$6.7 billion in 2026 and is expected to reach \$40.7 billion by 2034 growing at a CAGR of 25.2% during the forecast period. Oncology Precision Medicine & Liquid Biopsy combines personalized cancer care with advanced molecular testing to guide treatment based on the biological features of tumors. The approach uses genomic information, biomarkers, and liquid biopsy methods to detect clinically relevant alterations and evaluate changes in cancer over time. By examining circulating tumor DNA and related markers in blood, liquid biopsies provide minimally invasive opportunities for diagnosis, therapy selection, and monitoring. Together, these technologies enable individualized treatment strategies, ongoing assessment, and improved clinical decision-making across different stages of cancer management.

According to WHO/IARC, an estimated 20.6 million new cancer cases and nearly 10 million cancer deaths occurred globally each year, highlighting the substantial disease burden supporting demand for advanced oncology diagnostics and personalized treatment approaches.

Market Dynamics:

Driver:**Growing demand for personalized cancer treatment**

Rising demand for individualized cancer care is supporting the expansion of the Oncology Precision Medicine & Liquid Biopsy Market. Precision oncology helps physicians match treatments with the molecular and genetic profiles of tumors, supporting more targeted therapeutic decisions. Improvements in genomic sequencing and biomarker analysis are making it easier to identify clinically meaningful mutations across diverse cancers. At the same time, growing use of targeted medicines and companion diagnostic technologies is encouraging hospitals and oncology centers to incorporate molecular testing into routine cancer treatment and management strategies.

Restraint:**High cost of precision oncology testing**

Expensive precision oncology testing remains a potential limitation for the Oncology Precision Medicine & Liquid Biopsy Market. Genomic sequencing, molecular profiling, biomarker evaluation, and specialized diagnostic infrastructure can require considerable financial resources. Additional expenses related to laboratory processing, interpretation of complex genomic data, and skilled professionals may further increase testing costs. Where reimbursement coverage is limited or advanced diagnostic services are less accessible, healthcare providers may face challenges adopting these technologies. Consequently, financial barriers can restrict utilization among smaller healthcare facilities and patients requiring personalized oncology care.

Opportunity:**Expansion of multi-cancer early detection**

Growing development of multi-cancer early detection approaches presents an opportunity for the Oncology Precision Medicine & Liquid Biopsy Market. Blood-based liquid biopsy methods can examine circulating tumor DNA and other biomarkers that may reveal molecular signals linked with different cancers. Progress in sequencing technologies, biomarker identification, and artificial intelligence could strengthen the detection of cancer-associated patterns at earlier stages. With continued clinical research and validation, liquid biopsy applications may extend beyond therapy monitoring to include earlier cancer detection and risk evaluation across wider patient groups.

Threat:

Regulatory and clinical validation challenges

Regulatory requirements and the need for extensive clinical validation may create challenges for the Oncology Precision Medicine & Liquid Biopsy Market. Molecular diagnostics and liquid biopsy platforms need to establish dependable analytical performance, clinical validity, and practical clinical usefulness before widespread adoption. Variations in regulatory frameworks between countries can increase compliance requirements, development periods, and associated expenses. Additionally, limited evidence surrounding newly identified biomarkers can complicate regulatory evaluation. Such factors may postpone product launches, increase investment risks, and make commercialization of emerging oncology technologies more difficult.

Covid-19 Impact:

The COVID-19 outbreak significantly affected cancer screening, diagnosis, treatment, and research activities, influencing the oncology precision medicine and liquid biopsy market. According to WHO, cancer treatment services were disrupted in 42% of surveyed countries during 2020, while the NCI reported major reductions in enrollment across cancer clinical trials. Delayed procedures and constrained healthcare resources temporarily limited diagnostic activity. At the same time, demand for less invasive monitoring and adaptable care models encouraged greater attention toward liquid biopsy and molecular testing technologies.

The circulating tumor DNA (ctDNA) segment is expected to be the largest during the forecast period

The circulating tumor DNA (ctDNA) segment is expected to account for the largest market share during the forecast period, supported by its extensive use in molecular cancer assessment and monitoring. Through blood-based testing, ctDNA can provide information about tumor-related genetic changes without requiring invasive tissue collection. Its applications include identifying actionable alterations, evaluating therapeutic response, detecting molecular residual disease, and tracking cancer progression. Growing adoption of genomic sequencing and advanced molecular diagnostic techniques continues to enhance the importance of ctDNA within precision oncology and liquid biopsy applications.

The monitoring & recurrence detection segment is expected

to have the highest CAGR during the forecast period

Over the forecast period, the monitoring & recurrence detection segment is predicted to witness the highest growth rate, driven by expanding applications for continuous cancer monitoring. Liquid biopsy allows repeated analysis of circulating tumor DNA and related biomarkers, helping evaluate therapeutic response, identify molecular changes, and recognize possible disease recurrence. Improvements in sequencing sensitivity and minimal residual disease assessment are broadening its role in post-treatment surveillance. Growing emphasis on early molecular identification and individualized patient follow-up is expected to further strengthen demand for these monitoring applications.

Region with largest share:

During the forecast period, the North America region is expected to hold the largest market share, driven by developed cancer-care systems, widespread genomic testing, and established personalized medicine capabilities. Strong clinical research infrastructure and advanced molecular diagnostics facilitate the use of biomarker-guided approaches in oncology. The region also has numerous specialized cancer institutions and diagnostic laboratories that support liquid biopsy adoption. In addition, its well-developed pharmaceutical and biotechnology sectors encourage innovation, clinical validation, and implementation of precision oncology technologies and liquid biopsy solutions throughout healthcare settings.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR, driven by rising cancer burden, improving healthcare systems, and wider use of molecular diagnostic technologies. Increasing investments in genomic testing, personalized oncology, and liquid biopsy are strengthening regional development. Expanding healthcare availability in emerging countries is supporting adoption, while growing clinical demand for individualized cancer therapies is creating further opportunities. Improvements in biotechnology research, diagnostic infrastructure, and advanced molecular platforms are expected to reinforce the region's continued market expansion.

Key players in the market

Some of the key players in Oncology Precision Medicine & Liquid Biopsy Market include

F. Hoffmann-La Roche Ltd, Guardant Health, Illumina, Inc., Thermo Fisher Scientific Inc., QIAGEN N.V., Myriad Genetics, Inc., Sysmex Corporation, Bio-Rad Laboratories, Inc., Agilent Technologies, Inc., NeoGenomics Laboratories, Menarini Silicon Biosystems, Natera, Abbott Laboratories, Adaptive Biotechnologies, CellBxHealth PLC, Tempus AI, SOPHiA GENETICS and Freenome.

Key Developments:

In November 2025, Abbott and Exact Sciences announced a definitive agreement for Abbott to acquire Exact Sciences, which will enable it to enter and lead in fast-growing cancer diagnostics segments, serving millions more people. Under the terms of the agreement, Exact Sciences shareholders will receive \$105 per common share, representing a total equity value of approximately \$21 billion.

In October 2025, Thermo Fisher Scientific Inc. has agreed to acquire Clario Holdings Inc., a provider of digital endpoint data solutions for clinical trials. The deal includes potential additional earnout and other payments contingent on future performance. Clario's platform integrates clinical trial endpoint data from devices, sites, and patients, enabling pharmaceutical and biotechnology companies to digitally collect, manage, and analyze clinical evidence across all phases of drug development.

Biomarker Types Covered:

Circulating Tumor DNA (ctDNA)

Circulating Tumor Cells (CTCs)

Exosomes & Extracellular Vesicles

RNA Biomarkers

Protein Biomarkers

Cancer Types Covered:

Breast Cancer

Lung Cancer

Colorectal Cancer

Prostate Cancer

Hematological Malignancies

Other Solid Tumors

Technologies Covered:

Next-Generation Sequencing (NGS)

Polymerase Chain Reaction (PCR)

Digital PCR

In Situ Hybridization (ISH)

Immunohistochemistry (IHC)

Microarrays

Other Emerging Technologies

Applications Covered:

Diagnostics

Prognostics

Companion Diagnostics

Monitoring & Recurrence Detection

Screening

End Users Covered:

Hospitals & Clinics

Diagnostic Laboratories

Academic & Research Institutes

Pharmaceutical & Biotechnology Companies

Regions Covered:

North America

United States

Canada

Mexico

Europe

United Kingdom

Germany

France

Italy

Spain

Netherlands

Belgium

Sweden

Switzerland

Poland

Rest of Europe

Asia Pacific

China

Japan

India

South Korea

Australia

Indonesia

Thailand

Malaysia

Singapore

Vietnam

Rest of Asia Pacific

South America

Brazil

Argentina

Colombia

Chile

Peru

Rest of South America

Rest of the World (RoW)

Middle East

Saudi Arabia

United Arab Emirates

Qatar

Israel

Rest of Middle East

Africa

South Africa

Egypt

Morocco

Rest of Africa

What our report offers:

Market share assessments for the regional and country-level segments

Strategic recommendations for the new entrants

Covers Market data for the years 2023, 2024, 2025, 2026, 2027, 2028, 2030, 2032 and 2034

Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)

Strategic recommendations in key business segments based on the market estimations

Competitive landscaping mapping the key common trends

Company profiling with detailed strategies, financials, and recent developments

Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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