

Global Cancer Biomarkers Market - Types, Applications and Technologies

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Abstracts

Cancer biomarkers are molecules or processes that indicate the presence of cancer and can be genetic, epigenetic, proteomic, metabolic, glycomic, or imaging-based. They can be measured in tissue or non-invasively in blood, urine, saliva, and other biofluids to support diagnosis, prognosis, and treatment selection. Widely used cancer biomarkers include AFP, BRCA1/2, BCR-ABL, CA-125, EGFR, HER2, PSA, and specific mutant proteins detected by SRM. Biomarkers help classify cancer, predict clinical outcomes, and guide treatment decisions, while also supporting risk assessment, monitoring how patients respond to therapy, and detecting recurrence at earlier stages. Ideal biomarkers are reliable, cost-effective, detectable early, and reflective of tumor burden, though validation is challenging due to tumor heterogeneity. Detection relies on technologies such as NGS, PCR/ddPCR, mass spectrometry, immunoassays, cytogenetics, and imaging, supported by bioinformatics. Liquid biopsy methods, using ctDNA, CTCs, and exosomes, are expanding non-invasive testing options. Overall, biomarkers are central to personalized oncology, strengthening early detection, refining treatment decisions, and improving patient management.

The global market for Cancer Biomarkers is estimated at US\$27.6 billion in 2025 and is projected to reach US\$58 billion by 2032, with a CAGR of 11.2% during the forecast period 2025-2032. The global cancer biomarkers market is expanding rapidly, driven by the escalating global cancer burden, the urgent need for earlier and more accurate diagnosis, and breakthrough advancements in omics technologies such as genomics, proteomics, and transcriptomics. With millions of new cancer cases reported annually, driven by aging populations and unhealthy lifestyle shifts, healthcare systems are prioritizing earlier detection and more accurate molecular profiling. Demand for personalized oncology is accelerating, supported by the increasing use of next-generation sequencing (NGS), real-time PCR, and liquid biopsy platforms capable of

analyzing circulating tumor DNA and CTCs. Precision medicine initiatives such as the NHS Genomic Medicine Service and the U.S. NCI's Early Detection Research Network are expanding biomarker discovery and clinical validation. AI-enabled analytics are enhancing diagnostic accuracy by processing high-dimensional omics and imaging datasets, lowering turnaround times by up to 40% through automated workflows. The market is further strengthened by the rising adoption of non-invasive diagnostic tools, the commercialization of multiplex biomarker panels, and growth in companion diagnostics linked to targeted therapies, such as HER2-directed breast cancer treatments or KRAS-guided colorectal therapy decisions.

Cancer Biomarkers Regional Market Analysis

North America dominates the global cancer biomarkers market with a share of 42.9% in 2025. This leadership is driven by advanced healthcare infrastructure, substantial R&D investment, broad adoption of next-generation sequencing, strong regulatory support, and the concentration of major pharmaceutical and biotechnology companies. High cancer prevalence, rapid approval pathways, substantial government funding through agencies such as the NCI and NIH, and broad use of biomarker-based diagnostics and personalized medicine further reinforce its dominance. In contrast, the Asia Pacific is the fastest-growing region, expected to post a CAGR of 13.6% during the forecast period 2025-2032, propelled by rising cancer incidence, expanding healthcare spending, government-backed precision oncology programs, improved access to advanced diagnostics, and increasing biomarker-based clinical research activity across China, India, Japan, and South Korea. Growing healthcare modernization, cost-efficient R&D capabilities, collaborative initiatives, and comparatively easier regulatory approvals strengthen the Asia Pacific's position as a high-potential market for cancer biomarker development and adoption.

Cancer Biomarkers Market Analysis by Biomarker Type

The genetic biomarkers segment leads the cancer biomarkers market with a 30.5% share in 2025, driven by the widespread clinical use of well-established mutations such as BRCA1/2, KRAS, EGFR, and TP53, strong integration into personalized medicine, and the accuracy, reproducibility, and clinical actionability enabled by next-generation sequencing and other genomic technologies. Their broad adoption in routine diagnosis, treatment selection, and targeted therapy development supports this segment's leadership. In contrast, the epigenetic biomarkers segment is projected to post the fastest CAGR of 13.5% from 2025 to 2032, supported by rising awareness of DNA methylation, histone modification, and non-coding RNA as early cancer indicators,

strong potential for non-invasive detection, expanding epigenomics research, growing collaborations between diagnostics and pharmaceutical firms, increasing approvals in epigenetic therapies, and advancing sequencing technologies that enhance clinical relevance and accelerate development of novel biomarker tools.

Cancer Biomarkers Market Analysis by Cancer Type

The breast cancer segment dominates the cancer biomarkers market with a 22.7% share in 2025, supported by its high global prevalence, strong awareness and screening initiatives, and the established clinical use of ER, PR, HER2, Ki-67, BRCA1/2, and multigene assays that enable precise diagnosis, prognosis, and targeted therapy selection. Rising R&D activity, investments in companion diagnostics, regulatory approvals of targeted treatments, and growing adoption of liquid biopsy and multi-parametric panels further reinforce its dominance. Conversely, the lung cancer segment is expected to record the fastest CAGR of 13.8% from 2025 to 2032. This growth is driven by its high incidence and mortality, including an estimated 226,650 new U.S. cases and 124,730 deaths in 2025, along with increased smoking exposure and pollution. Rapid uptake of liquid biopsy, ctDNA tests, and biomarkers such as EGFR, ALK, ROS1, PD-L1, and TMB, combined with their central role in guiding targeted therapies and immunotherapies, is accelerating the expansion of biomarker testing in lung cancer.

Cancer Biomarkers Market Analysis by Application

The diagnostic application is the largest segment in the cancer biomarkers market, holding a share of 46% in 2025, driven by strong emphasis on early detection, rising investment in advanced diagnostic technologies, routine integration of biomarkers into screening programs for breast, colorectal, and prostate cancers, and broad regulatory and reimbursement support that accelerates clinical adoption. High sensitivity, non-invasive modalities such as liquid biopsy, molecular imaging, and multiplex assays, combined with the infrastructure and scale of diagnostic laboratories, reinforce the segment's dominance as cancer prevalence rises globally. In contrast, personalized medicine is expected to post the fastest CAGR of 12.7% from 2025 to 2032, propelled by the growing need for tailored therapies based on individual molecular profiles, rapid advances in NGS and companion diagnostics, expanding biomarker-guided clinical trials, and increasing clinician and patient demand for targeted treatments that improve efficacy, minimize adverse effects, and shift cancer care toward precision-driven approaches.

Cancer Biomarkers Market Analysis by Technology

Omics technologies hold the largest 36.2% of the cancer biomarkers market in 2025 and are also the fastest-growing segment with a projected CAGR of 13% through 2032. This growth is driven by their ability to deliver comprehensive genomic, proteomic, metabolomic, and transcriptomic insights that accelerate biomarker discovery, precision oncology, early diagnosis, and targeted drug development. High-throughput sequencing, advanced molecular profiling methods, and AI-driven bioinformatics are accelerating the identification of complex molecular signatures, enhancing diagnostic accuracy, refining treatment selection, and driving the rapid expansion of precision medicine. Following omics, imaging technologies remain the next major contributor, generating substantial revenue due to widespread use of PET, CT, MRI, and radiolabeled biomarker imaging for non-invasive tumor detection, monitoring, and treatment planning; innovations in AI-enhanced imaging, functional MRI, PET-CT, and radiogenomics continue to strengthen this segment's role in clinical decision-making and its long-term growth potential within the cancer biomarker landscape.

Cancer Biomarkers Market Report Scope

This global report on Cancer Biomarkers analyzes the market based on type, cancer type, application, and technology for the period 2022-2032 with projections from 2025 to 2032 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: 2022-2024

Base Year: 2025

Forecast Period: 2025-2032

Units: Value market in US\$

Companies Mentioned: 15+

Cancer Biomarkers Market by Geographic Region

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

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

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

South America (Brazil, Argentina, and Rest of South America)

Rest of World

Cancer Biomarkers Market by Type

Genetic Biomarkers

Epigenetic Biomarkers

Metabolic Biomarkers

Proteomic Biomarkers

Other Types (Including Circulating Tumor Cells (CTCs), Immune Biomarkers, Glycoprotein Biomarkers, and others)

Cancer Biomarkers Market by Cancer Type

By Cancer Type

Breast Cancer

Lung Cancer

Colorectal Cancer

Prostate Cancer

Blood Cancers (Leukemia, Lymphoma)

Liver Cancer

Other Cancer Types (Including Melanoma, Ovarian, Cervical, Kidney, Bladder,

and other cancers)

Cancer Biomarkers Market by Application

Diagnostics

Personalized Medicine

Drug Discovery and Development

Other Applications (Including Prognostics, Risk Assessment, Research & Development, Screening, Monitoring, and others)

Cancer Biomarkers Market by Technology

Omics Technologies

Imaging Technologies

Immunoassay

Cytogenetics

Other Technologies (Including Bioinformatics, Next-Generation Sequencing (NGS), PCR, Mass Spectrometry, and others)

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3. KEY MARKET PLAYERS

Abbott Laboratories
Agilent Technologies, Inc
Becton, Dickinson and Company (BD)
bioMerieux SA
Bio-Rad Laboratories, Inc.
Exact Sciences Corporation
Guardant Health, Inc.
Hologic, Inc.
Illumina, Inc.
Merck KGaA
Myriad Genetics Inc.
Qiagen N.V.
Quest Diagnostics
Roche Holding AG
Siemens Healthineers
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