+44 20 8123 2220
info@marketpublishers.com

Biomarkers: Discovery Techniques and Applications – A Global Market Overview

https://marketpublishers.com/r/B47D4750468EN.html
Date: February 2025
Pages: 316
Price: US$ 4,500.00 (Single User License)
ID: B47D4750468EN

Abstracts

Biomarkers Market Trends and Outlook

A biomarker, or biological marker, is a measurable indicator of a biological state or condition, often used to detect or monitor diseases, assess disease progression, or evaluate treatment effects. Biomarkers can include molecules, genes, proteins, or other substances in tissues, blood, or other body fluids. They are essential in diagnostics, personalized medicine, and drug development by offering insights into health conditions or responses to medical interventions. Biomarkers are fundamental to companion diagnostics and clinical research, and healthcare professionals often integrate them with advanced imaging technologies to visualize data, which helps in designing effective treatment plans. They assist in identifying potential therapeutic targets and predicting patient responses. They also reduce radiation exposure during imaging, such as MRI and CT scans, by providing clearer imaging of oncology tumors, neurological, cardiovascular, and other conditions.

The market for biomarkers is propelled by the rising incidence of chronic conditions such as cancer, neurological and cardiovascular diseases, and diabetes, as well as a growing need for early detection and precision medicine. Significant factors driving growth include advancements in liquid biopsy technology, point-of-care testing, and multi-biomarker panels. Innovations in genomics, proteomics, and high-throughput screening have improved the discovery of biomarkers with greater specificity and sensitivity. Biomarkers are essential in drug development by enhancing efficiency, reducing costs, and streamlining the clinical trials. Increased investments in biotechnology, healthcare systems, and personalized medicine are contributing to market expansion. The aging population and the growing use of minimally invasive diagnostic techniques are further boosting demand. Government initiatives, partnerships

+44 20 8123 2220
info@marketpublishers.com

within the industry, and innovations in digital biomarkers are enhancing research and adoption rates. Biomarkers facilitate targeted therapies, which lead to better treatment outcomes and decreased healthcare expenses. Their incorporation into diagnostics, disease monitoring, and drug development highlights their vital importance in modern healthcare.

Biomarkers Regional Market Analysis

North America dominates the global biomarkers market in 2024, capturing an estimated 43.2% share, influenced by elevated cancer rates, governmental initiatives, and advanced healthcare infrastructure. The region benefits from a strong biotechnology and pharmaceutical sector, substantial investments in research and development, and regulatory backing, particularly from the FDA. These elements, coupled with the increasing incidence of chronic conditions such as cancer and cardiovascular diseases, increase the need for biomarkers in both diagnostics and drug development. Conversely, the Asia-Pacific region is projected to experience rapid growth, with a CAGR of 15.3% during the forecast period 2024-2030, driven by a rise in chronic disease cases, government investments, and progress in biopharmaceuticals. Growing healthcare expenditures and geriatric population in nations like China and India are further propelling market expansion.

Biomarkers Market Analysis by Type

In 2024, the safety biomarkers segment led the global biomarkers market, accounting for a 38.6% share, due to its significance in early clinical trials for identifying toxicity and ensuring patient safety. The increasing drug development costs and regulatory requirements from authorities such as the FDA and EMA strengthen the need for safety biomarkers to reduce adverse effects and failures in late-stage trials. Progressions in omics technologies enhance both the sensitivity and specificity of these biomarkers, which aids in detecting organ-specific toxicity and the personalization of therapies. On the other hand, the efficacy biomarkers segment is anticipated to witness the fastest growth rate with a CAGR of 14.9% from 2024 to 2030, owing to its crucial role in assessing drug efficacy and forecasting patient responses. Efficacy biomarkers facilitate personalized medicine, enhance therapeutic results, and are essential for the success of clinical trials, driving their integration into precision medicine and drug discovery efforts.

Biomarkers Market Analysis by Discovery Technology

+44 20 8123 2220
info@marketpublishers.com

Omics technologies led the biomarker market, capturing an estimated share of 53% in 2024 due to their ability to conduct comprehensive molecular data analysis. These technologies play a vital role in precision medicine and the discovery of biomarkers, with various applications in fields such as oncology, neurology, and others. Developments in Next-Generation Sequencing (NGS) and mass spectrometry have lowered costs, contributing to market growth. Genomics, proteomics, metabolomics, and transcriptomics are crucial in identifying and validating biomarkers for disease diagnosis and drug development. Meanwhile, bioinformatics is projected to register the fastest CAGR of 15.3% during the analysis period 2024-2030, driven by the integration of AI and machine learning, which enhances data analysis and fosters personalized medicine.

Omics Technologies Market Analysis by Type

Genomics constitutes the largest segment within the omics technologies market, holding a 41% share, and is expected to grow the fastest with a CAGR of 14.5% from 2024 to 2030. This expansion is fueled by the rising use of Next-Generation Sequencing (NGS) technologies, which facilitate quick and cost-efficient genetic data analysis. Genomics serves as a crucial foundation for biomarker discovery, precision medicine, and oncology, with its usage broadened to include genetic disorders and tailored therapies. The second-largest segment, proteomics, benefits from its capacity to examine proteins and biomarkers at a high throughput, utilizing mass spectrometry and liquid chromatography. Although its growth rate is slower when compared to genomics, proteomics continues to be vital for drug discovery, disease diagnosis, and gaining insights into disease mechanisms, thus maintaining a strong position in the market.

Biomarkers Market Analysis by Disease Indication

The cancer segment dominates the biomarkers market with an estimated 42.5% share in 2024, influenced by the increasing incidence of cancer, its complexity, and the growing demand for personalized therapies. Biomarkers facilitate early detection, diagnosis, prognosis, and targeted treatment, with tools such as circulating tumor DNA and PSA supporting swift diagnostic processes. Progress in precision medicine and increasing research for new cancer biomarkers further support this segment's dominance. In contrast, the neurological diseases segment is anticipated to experience rapid growth, with a CAGR of 15.3% during the 2024-2030 analysis period, spurred by an aging population and the rising occurrence of Alzheimer's and Parkinson's diseases. Biomarkers are crucial for early diagnosis, tracking disease progression, and developing individualized treatment strategies. The escalating necessity for effective management

+44 20 8123 2220
info@marketpublishers.com

of neurodegenerative diseases and continued research and development contribute to this segment's growth.

Biomarkers Market Analysis by Application

The drug discovery and development segment accounted for the largest share of 31.4% in the biomarkers market due to its importance in finding drug targets, understanding disease mechanisms, and enhancing the efficiency of clinical trials. Biomarkers facilitate drug development by offering preliminary insights into safety, effectiveness, and potential failure risks, significantly reducing time and costs. They optimize processes by assisting in target validation, selecting candidates, and stratifying patients, thus allowing for the creation of targeted therapies. Increased R&D investments, collaborations, and the use of biomarkers in preclinical and clinical studies have further accelerated the growth of this segment. In contrast, the diagnostics segment is anticipated to record the fastest CAGR of 14.8% from 2024 to 2030, driven by a growing need for precise diagnostics, early disease detection, and personalized treatment options. Biomarkers enhance diagnostic accuracy, support early interventions, and improve patient outcomes, making them essential tools for progressing healthcare solutions worldwide.

Biomarkers Market Report Scope

This global report on Biomarkers analyzes the global and regional markets based on type, discovery technology, sub-type, disease indication, and application for the period 2021-2030 with projections 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: 35+

+44 20 8123 2220
info@marketpublishers.com

Biomarkers 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

Biomarkers Market by Type

- Safety Biomarkers
- Efficacy Biomarkers
- Validation Biomarkers

Biomarkers Market by Discovery Technology

- Omics Technologies
- Genomics
- Proteomics
- Metabolomics
- Transcriptomics
- Other Omics Technologies (Including Epigenomics, Lipidomics, Glycomics, and others)
- Bioimaging
- Bioinformatics

+44 20 8123 2220
info@marketpublishers.com

Biomarkers Market by Disease Indication

- Cancer
- Cardiovascular Diseases
- Neurological Diseases
- Immunological Diseases
- Other Disease Indications (Including Renal Diseases, Metabolic Diseases, Hematological Diseases, and others)

Biomarkers Market by Application

- Diagnostics
- Drug Discovery & Development
- Personalized Medicine
- Disease Risk Assessment
- Other Applications (Including Disease Monitoring & Prognosis, Research, Forensic Applications, and others)

+44 20 8123 2220
info@marketpublishers.com

Contents

PART A: GLOBAL MARKET PERSPECTIVE

+44 20 8123 2220
info@marketpublishers.com

+44 20 8123 2220
info@marketpublishers.com

PART B: REGIONAL MARKET PERSPECTIVE

+44 20 8123 2220
info@marketpublishers.com

+44 20 8123 2220
info@marketpublishers.com

+44 20 8123 2220
info@marketpublishers.com

+44 20 8123 2220
info@marketpublishers.com

About

Physicians are able to diagnose a variety of diseases, including bladder infections and diabetes, through routine urine examinations. However, new research has indicated a chemical signature associated with gastroesophageal cancers found in a chemical cloud of volatile organic compounds hovering above a sample of urine, which could be a precursor in enabling the detection of these fatal cancers in their early stages. Studies have revealed that in individuals with cancers of the stomach or esophagus, merely 20% are provided treatment, since the diagnosis gets too delayed for the doctors to stop the cancer's progression. Moreover, the symptoms of such cancers manifest only at an advanced stage, leading to poor prognosis, which reinforces the requirement of diagnostic tests for screening patients to help in catching the disease at an earlier stage. Mass spectrometry has come to the aid in analyzing volatile compounds that float over biological samples, called the headspace of a sample, offering a prospect in detecting diagnostic chemical signals. Analyzing the gastric juices from individuals with gastroesophageal cancers has enabled researchers in discovering high levels of numerous compounds, such as formaldehyde and hexanoic acid that float over these juices. On a negative note, only scanning of gastric juices does not suffice for a positive diagnostic outcome, since the process of obtaining fluids from patients is invasive and the volume yields are small. However, since urine is a plentiful sample and easy to procure, the prospects offered by this sample make it highly suited for clinical tests.

Establishing the presence of cancer-linked compounds in the headspace of urine samples involved obtaining samples from three patient groups, viz., 17 patients diagnosed with gastroesophageal cancer, 13 healthy controls and 14 individuals with stomach conditions not related to cancer. After 10 ml of each urine sample was transferred into a specimen cup and sealed, the researchers punctured the seal with a hypodermic needle attached to a tube for feeding gaseous samples into a mass spectrometer directly.Physicians are able to diagnose a variety of diseases, including bladder infections and diabetes, through routine urine examinations. However, new research has indicated a chemical signature associated with gastroesophageal cancers found in a chemical cloud of volatile organic compounds hovering above a sample of urine, which could be a precursor in enabling the detection of these fatal cancers in their early stages. Studies have revealed that in individuals with cancers of the stomach or esophagus, merely 20% are provided treatment, since the diagnosis gets too delayed for the doctors to stop the cancer's progression. Moreover, the symptoms of such cancers manifest only at an advanced stage, leading to poor prognosis, which reinforces the requirement of diagnostic tests for screening patients to help in catching

+44 20 8123 2220
info@marketpublishers.com

the disease at an earlier stage.

Mass spectrometry has come to the aid in analyzing volatile compounds that float over biological samples, called the headspace of a sample, offering a prospect in detecting diagnostic chemical signals. Analyzing the gastric juices from individuals with gastroesophageal cancers has enabled researchers in discovering high levels of numerous compounds, such as formaldehyde and hexanoic acid that float over these juices. On a negative note, only scanning of gastric juices does not suffice for a positive diagnostic outcome, since the process of obtaining fluids from patients is invasive and the volume yields are small. However, since urine is a plentiful sample and easy to procure, the prospects offered by this sample make it highly suited for clinical tests.

Establishing the presence of cancer-linked compounds in the headspace of urine samples involved obtaining samples from three patient groups, viz., 17 patients diagnosed with gastroesophageal cancer, 13 healthy controls and 14 individuals with stomach conditions not related to cancer. After 10 ml of each urine sample was transferred into a specimen cup and sealed, the researchers punctured the seal with a hypodermic needle attached to a tube for feeding gaseous samples into a mass spectrometer directly.

+44 20 8123 2220
info@marketpublishers.com

I would like to order

Product name: Biomarkers: Discovery Techniques and Applications – A Global Market Overview
Product link: https://marketpublishers.com/r/B47D4750468EN.html
Price: US$ 4,500.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:
info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page https://marketpublishers.com/r/B47D4750468EN.html