

Pediatric Cancer Biomarkers Market Poised for Growth with Advancements in Precision Medicine and Early Detection

The advances in diagnostic technology and ever-increasing interest in cancer early detection amongst children form a significant growth in the market

VANCOUVER, BC, CANADA, February 6, 2025 /EINPresswire.com/ -- The [pediatric cancer biomarkers market](#) is expected to grow from an estimated USD 836.6 million in 2024 to USD 1787.2 million in 2033, at a CAGR of 8.80%. The pediatric cancer biomarkers market is witnessing significant growth, driven by advancements in diagnostic

technology and increasing awareness of early cancer detection in children. Biomarkers such as AFP and NSE have shown promise in identifying cancer types like leukemia and neuroblastoma, improving survival rates. Emerging genomic research has paved the way for precision medicine, allowing treatments to be tailored based on individual biomarker profiles. In May 2023, St. Jude Children's Research Hospital collaborated with pharmaceutical companies to develop biomarker-based therapies, highlighting a growing trend of partnerships aimed at improving treatment outcomes.

Governments and healthcare organizations are actively supporting pediatric oncology research through increased funding. The National Cancer Institute (NCI) raised its funding for pediatric cancer biomarker research by 15% in 2023. Additionally, major players in the industry are expanding their biomarker portfolios. In September 2024, Roche Diagnostics introduced a CD19/CD22 assay specifically for pediatric lymphoma diagnosis, reinforcing the market's shift toward faster, more accurate, and less invasive diagnostic methods.

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Market Drivers: Precision Medicine and Technological Innovations



The growing adoption of biomarker-based precision medicine is transforming pediatric cancer treatment. Biomarkers like ALK and CD20 enable accurate diagnosis, helping clinicians choose targeted therapies that minimize side effects while maximizing efficacy. The rising incidence of childhood cancers, particularly leukemia and central nervous system (CNS) tumors, has further fueled demand for these solutions.

In March 2024, Pfizer Oncology launched a precision medicine initiative using ALK biomarkers in pediatric cancer treatments, showcasing the pharmaceutical industry's commitment to innovation. Additionally, liquid biopsy technology has made biomarker testing more accessible and non-invasive, allowing for early diagnosis and continuous monitoring. Advances in next-generation sequencing (NGS) have also accelerated the discovery of new biomarkers for rare and aggressive pediatric cancers, making personalized treatment more effective and affordable.

Collaborations between research institutions and biotech firms are facilitating the development of companion diagnostics that ensure therapies are well-matched to patients. Public health initiatives supporting biomarker research and precision medicine infrastructure are also playing a key role in advancing pediatric cancer care worldwide.

Market Challenges: Validation and Accessibility Issues

Despite these advancements, challenges remain in the pediatric cancer biomarkers market. One major restraint is the lack of adequate validation across diverse populations, as genetic variations affect the applicability of biomarkers. This issue is more prominent in emerging markets, where genetic research on pediatric cancer remains limited. In April 2023, the World Health Organization (WHO) called for more inclusive research on cancer biomarkers to address these disparities.

The absence of standardized guidelines for biomarker validation and clinical use further complicates market growth. Without harmonized protocols, healthcare providers face difficulties in interpreting biomarker results consistently. Limited awareness and training among medical professionals regarding new biomarker technologies also hinder widespread adoption.

Cost remains another significant barrier, particularly in low-income regions where healthcare budgets are constrained. Advanced biomarker diagnostics, such as NGS and liquid biopsy, require substantial investment. Collaborative efforts from governments, healthcare organizations, and pharmaceutical companies are essential to building sustainable funding models and improving access to advanced diagnostic tools.

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Leukemia Leads Market Growth in Pediatric Cancer Biomarkers

Among various cancer types, leukemia holds the largest share in the pediatric cancer biomarkers market. Biomarkers such as CD19 and CD22 play a crucial role in targeted therapies, significantly improving remission rates in affected children. Acute Lymphoblastic Leukemia (ALL), the most common form of childhood leukemia, has seen remarkable progress due to biomarker-based treatment strategies.

Companies like Amgen Inc. are investing in CD22-based therapies that enhance treatment accuracy while reducing side effects. Liquid biopsy methods using circulating tumor DNA (ctDNA) are revolutionizing leukemia diagnosis and monitoring, offering a non-invasive way to track disease progression. Additionally, CAR T-cell therapies targeting CD19 have demonstrated long-term remission benefits for relapsed or refractory leukemia cases.

Public-private partnerships are driving innovation and making biomarker-driven treatments more accessible in both developed and emerging markets. These efforts are crucial for advancing leukemia biomarkers and improving survival rates and quality of life for children battling cancer. With continued research and technological advancements, the pediatric cancer biomarkers market is expected to experience sustained growth in the coming years.

Pediatric Cancer Biomarkers Top Companies and Competitive Landscape

The pediatric cancer biomarkers market is highly competitive, with many firms vying to improve diagnostic efficiency and therapeutic effectiveness through innovation. Leading firms are driving advancements in biomarker technology for the early detection and monitoring of pediatric cancers such as leukemia, neuroblastoma, and CNS tumors. Researchers are also collaborating with these firms to drive breakthroughs in personalized medicine.

Prominent companies such as Abbott Laboratories, Thermo Fisher Scientific Inc., QIAGEN N.V., PerkinElmer Inc., Illumina Inc., Agilent Technologies Inc., Bio-Rad Laboratories Inc., F. Hoffmann-La Roche Ltd., Genomic Health Inc., and Merck KGaA are actively engaged in expanding their pediatric cancer biomarker portfolios. These firms are integrating advanced technologies, such as next-generation sequencing (NGS) and proteomics, to develop highly sensitive and specific diagnostic assays.

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Some of the key companies in the global Pediatric Cancer Biomarkers market include:

Roche Diagnostics

Pfizer Oncology

Novartis

Abbott Laboratories

Amgen Inc.

Thermo Fisher Scientific

Illumina, Inc.

Qiagen N.V.

Bio-Rad Laboratories

PerkinElmer, Inc.

Pediatric Cancer Biomarkers Latest Industry Updates

In October 2023, Illumina Inc. announced a strategic partnership with a leading pediatric oncology institute to develop liquid biopsy solutions tailored for pediatric cancers, aiming to improve non-invasive diagnostic approaches.

In September 2024, Roche Diagnostics launched a CD22-based diagnostic kit for pediatric leukemia. Roche Diagnostics unveiled a novel diagnostic kit targeting the CD22 biomarker, specifically designed for the early detection and monitoring of pediatric leukemia. The kit leverages advanced immunoassay techniques to identify CD22, a critical surface protein frequently expressed in B-cell leukemia cases.

In July 2024, Novartis introduced ALK-targeted therapy for neuroblastoma treatment. Novartis expanded its pediatric oncology portfolio with the introduction of a new anaplastic lymphoma kinase (ALK)-targeted therapy designed to treat neuroblastoma, one of the most common cancers in children. This therapy focuses on inhibiting ALK gene mutations, which are implicated in a subset of aggressive neuroblastoma cases.

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Pediatric Cancer Biomarkers Market Segmentation Analysis

By Indication Outlook (Revenue, USD Million; 2020-2033)

Leukemia

Neuroblastoma

CNS Tumors

Lymphoma

Others

By Biomarker Outlook (Revenue, USD Million; 2020-2033)

Alpha-fetoprotein (AFP)

Neuron-specific enolase (NSE)

CD19, CD20, CD22

ALK (anaplastic lymphoma receptor tyrosine kinase gene)

Others

By End Use Outlook (Revenue, USD Million; 2020-2033)

Hospital

Diagnostic Laboratories

Oncology Centers

Research Institutions

By Regional Outlook (Revenue, USD Million; 2020-2033)

North America

United States

Canada

Mexico

Europe

Germany

France

United Kingdom

Italy

Spain

Benelux

Rest of Europe

Asia-Pacific

China

India

Japan

South Korea

Rest of Asia-Pacific

Latin America

Brazil

Rest of Latin America

Middle East and Africa

Saudi Arabia

UAE

South Africa

Turkey

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