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Glycomics Market Report by Product (Enzymes, Instruments, Kits, Reagents), Application (Drug Discovery and Development, Diagnostics, and Others), End User (Academic and Research Institutes, Pharmaceutical and Biotechnology Companies, Contract Research Organizations (CROs)), and Region 2024-2032

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Abstracts

The global glycomics market size reached US$ 1.5 Billion in 2023. Looking forward, IMARC Group expects the market to reach US$ 4.1 Billion by 2032, exhibiting a growth rate (CAGR) of 11.17% during 2024-2032. The growing prevalence of chronic diseases among the masses, the rising focus on glycoengineering techniques, and the growing number of contract research organizations (CROs) involved in drug and biologics are some of the major factors propelling the market.

Glycomics is a scientific field that focuses on the comprehensive study of carbohydrates, specifically glycans, in biological systems. It aims to understand the structure, composition, and functions of glycans, as well as their interactions with other biomolecules. By analyzing the glycome, researchers can determine how glycans influence biological processes and contribute to health and disease. This interdisciplinary field combines aspects of chemistry, biochemistry, molecular biology, and informatics to unravel the complexities of glycan structures and functions. The insights gained from the research have implications across various domains, including medicine, drug development, biomarker discovery, and personalized therapeutics.

The global market is primarily driven by the growing prevalence of chronic diseases. Moreover, the increasing focus on glycoengineering is supporting the market as

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glycoengineering involves the modification or manipulation of glycans for various applications, including therapeutics, vaccines, and biotechnology. Apart from this, Governments, research organizations, and private investors are recognizing the potential of glycomics in advancing healthcare and biotechnology and are providing investments to conduct in-depth studies, develop new technologies, and explore the commercialization of glycomics-based products, providing a boost to the market. Furthermore, it is gaining popularity in the field of education and training worldwide. Additionally, the growing number of contract research organizations (CROs) involved in drug and biologics development and production is augmenting the market growth. Other factors, such as expanding pharmaceutical industry, increasing number of clinical trials, and advancements in healthcare infrastructure, are also influencing the market.

Glycomics Market Trends/Drivers:
Increasing Research and Development Activities

The market is experiencing a significant boost in research and development (R&D) activities. The growing understanding of the crucial roles played by glycans in various biological processes has increased interest in studying and manipulating these molecules. Researchers and pharmaceutical companies are investing in research to explore the potential applications of glycans in drug discovery, personalized medicine, and diagnostics. Moreover, the expanding scope of the research is driven by continuous advancements in analytical techniques and technologies. Furthermore, collaborations between academia, industry, and research institutions have fueled the growth of glycomics R&D. These collaborations bring together diverse expertise and resources, fostering innovation and accelerating the development of glycomics-based products. Additionally, the collaborative efforts between various stakeholders contribute to the expansion of knowledge, development of new technologies, and translation of research findings into practical applications.

Rising Demand for Personalized Medicine

Personalized medicine, which aims to tailor medical treatments to individual patients based on their genetic makeup and specific characteristics, is gaining prominence. It plays a pivotal role in personalized medicine as glycans have been implicated in various diseases and can serve as potential biomarkers for diagnostics and prognostics. The ability to analyze and understand the glycome of patients can enable the development of targeted therapies and more precise medical interventions. In addition, the advancements in glycomics profiling technologies, such as glycan microarrays and glycan sequencing, have facilitated the identification of disease-specific glycan

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signatures. These discoveries hold promise for the development of glycan-based diagnostics, personalized therapeutics, and companion diagnostics, further fueling the demand for glycomics research and products.

Increasing Focus on Biomarker Discovery

Glycomics has gained significant attention in the field of biomarker discovery. Glycans have shown promising potential as biomarkers for various diseases, including cancer, cardiovascular disorders, and infectious diseases. Biomarkers play a crucial role in disease diagnosis, prognosis, and monitoring treatment efficacy. Moreover, the growing focus on biomarker discovery has propelled the demand for research, as the identification of reliable and specific biomarkers is crucial for improving disease detection, patient stratification, and treatment selection. Furthermore, the integration of glycomics into biomarker discovery pipelines has the potential to revolutionize diagnostics and enable early intervention, driving the growth of the overall market. Also, the research offers a unique opportunity to identify specific glycan patterns or alterations associated with different diseases. By studying the glycome of individuals or patient cohorts, researchers can unveil disease-specific glycan signatures that can serve as diagnostic or prognostic biomarkers.

Glycomics Industry Segmentation:
IMARC Group provides an analysis of the key trends in each segment of the global glycomics market report, along with forecasts at the global, regional and country levels from 2024-2032. Our report has categorized the market based on product, application and end user.

Breakup by Product:

Enzymes
Glycosidases
Glycosyltransferases
Neuraminidases
Sialyltransferases
Others
Instruments
Mass Spectrometers
HPLC
MALDI-TOF
Array systems

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Others
Kits
Glycan Labeling Kits
Glycan Purification Kits
Glycan Release Kits
Others
Reagents
Glycoproteins
Monosaccharides
Oligosaccharides
Others

Enzymes equipment dominates the market

The report has provided a detailed breakup and analysis of the market based on the product. This includes enzymes (glycosidases, glycosyltransferases, neuraminidases, sialyltransferases, and others), instruments (mass spectrometers, HPLC, MALDI-TOF, array systems, and others), kits (glycan labeling kits, glycan purification kits, glycan release kits, and others), reagents (glycoproteins, monosaccharides, oligosaccharides, and others). According to the report, enzymes represented the largest segment.

On the basis of the product, enzymes represent the largest product segment within the market. Enzymes play a crucial role in research and applications by facilitating the analysis and manipulation of glycans. Enzymes, such as glycosidases, glycosyltransferases, and glycosyl hydrolases, are utilized in various workflows, including glycan release, structural analysis, and glycan modification. Moreover, enzymes are essential for the enzymatic cleavage of glycans from glycoproteins or glycolipids, enabling the analysis of liberated glycans. The demand for enzymes in research and applications is driven by the growing need for robust and efficient enzymatic tools. Researchers and scientists rely on enzymes to accurately and selectively manipulate glycans, enabling comprehensive glycomics analysis and the development of glycan-based products. Additionally, advancements in enzyme engineering and optimization have led to the development of highly specific and efficient enzymes, further enhancing their utility in glycomics research.

Breakup by Application:

Drug Discovery and Development
Diagnostics

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Others

Drug discovery and development hold the largest share in the market

A detailed breakup and analysis of the market based on the application has also been provided in the report. This includes drug discovery and development, diagnostics, and others. According to the report, drug discovery and development accounted for the largest market share.

On the basis of application, drug discovery and development represent the largest segment within the overall market. It plays a crucial role in advancing drug discovery and development processes by providing insights into the role of glycans in disease mechanisms, drug efficacy, and safety. Glycans are involved in various biological processes and have been linked to numerous diseases, including cancer, cardiovascular disorders, and infectious diseases. Understanding the glycan profiles and their interactions with proteins and cells is essential for identifying potential therapeutic targets and designing effective drugs. Moreover, the integration with drug discovery and development processes has led to the development of glycan-based therapies, companion diagnostics, and improved drug screening platforms. Also, the focus on targeting glycans in drug discovery and development has driven the demand for research and technologies, making it the largest application segment within the market.

Breakup by End User:

Academic and Research Institutes
Pharmaceutical and Biotechnology Companies
Contract Research Organizations (CROs)

Academic and research institutes hold the largest share in the market

A detailed breakup and analysis of the market based on the end user has also been provided in the report. This includes academic and research institutes, pharmaceutical and biotechnology companies, and contract research organizations (CROs). According to the report, academic and research institutes accounted for the largest market share.

Academic and research institutes represent the largest segment of the market. They play a vital role in driving research and advancements in the field. These institutions serve as the primary hubs for scientific research, knowledge generation, and innovation

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in the field. They are home to leading scientists, researchers, and experts who are actively involved in studying and exploring the complexities of glycans. These institutions also provide the necessary infrastructure, funding, and collaborative opportunities to support the research. They often house state-of-the-art laboratories equipped with advanced analytical instruments and technologies, enabling comprehensive glycan analysis and profiling. Furthermore, academic and research institutes contribute significantly to expanding the knowledge base through publications, scientific conferences, and collaborations. They foster interdisciplinary research collaborations, bringing together experts from various fields such as chemistry, biology, bioinformatics, and medicine.

Breakup by Region:

North America
United States
Canada
Asia-Pacific
China
Japan
India
South Korea
Australia
Indonesia
Others
Europe
Germany
France
United Kingdom
Italy
Spain
Russia
Others
Latin America
Brazil
Mexico
Others
Middle East and Africa

North America exhibits a clear dominance, accounting for the largest glycomics market

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share

The report has also provided a comprehensive analysis of all the major regional markets, which include North America (the United States and Canada), Asia Pacific (China, Japan, India, South Korea, Australia, Indonesia, and others), Europe (Germany, France, the United Kingdom, Italy, Spain, Russia, and others), Latin America (Brazil, Mexico, and others), and the Middle East and Africa. According to the report, North America accounted for the largest market share.

Region-wise, North America exhibits a clear dominance in the market. North America is home to several renowned academic institutions, research organizations, and biotechnology companies that have made significant contributions to the research. These institutions have robust research infrastructure, state-of-the-art laboratories, and well-established collaborations, facilitating cutting-edge studies and innovation. Moreover, the region has a well-developed healthcare and biopharmaceutical sector, which drives the demand for research and applications. The presence of major pharmaceutical companies and biotech firms in North America leads to significant investments in the research for drug discovery, personalized medicine, and the development of glycan-based therapeutics. Furthermore, the region has a favorable regulatory environment and strong intellectual property protections that encourage innovation and commercialization of glycomics-based products. The region's well-defined regulatory frameworks provide clarity and guidance for research, ensuring the safety and efficacy of glycan-based diagnostics and therapeutics.

Competitive Landscape:
Companies in the market are involved in various activities related to glycomics research, product development, and commercialization. Several major companies are investing in research and development to advance the understanding of glycans, develop new technologies, and explore applications in various fields. They conduct studies to uncover the roles of glycans in disease mechanisms, identify glycan biomarkers, and understand glycan-protein interactions. Moreover, the companies in the market develop and manufacture products that support the research. This includes enzymes, kits, reagents, and instruments used in glycan analysis, glycan profiling, and glycan modification. These products help researchers in academia, pharmaceutical companies, and research institutes carry out glycomics experiments and investigations. Additionally, some companies focus on translating research into commercial applications. They develop and market glycan-based products for various industries, such as biopharmaceuticals, diagnostics, and nutraceuticals.

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The report has provided a comprehensive analysis of the competitive landscape in the market. Detailed profiles of all major companies have also been provided. Some of the key players in the market include:

Agilent Technologies Inc.
Asparia Glycomics
Bruker Corporation
Danaher Corporation
Dextra Laboratories Limited (New Zealand Pharmaceuticals Limited)
Merck KGaA
New England Biolabs
RayBiotech Life Inc.
Shimadzu Corporation
Takara Bio Inc.
Thermo Fisher Scientific Inc.
Waters Corporation.

Recent Developments:
In June 2023, Agilent Technologies Inc. launched Agilent BioTek 406 FX washer dispenser, a compact instrument that combines multifunctional reagent dispensing and plate-washing capabilities. The BioTek 406 FX offers expanded liquid handling features designed for integration into automated systems and standalone benchtop use.
In March 2023, Waters Corporation launched Next-Generation Alliance iS HPLC System aimed at reducing Up to 40% of Common Lab Errors. This new product helps laboratories manage operational risk, mitigate disruptions, and increase overall productivity.
In September 2022, Thermo Fisher Scientific Inc. launched the DynaSpin™ Single-Use Centrifuge system2. The system is specifically designed to provide an optimal single-use solution for large-scale cell culture harvesting. It also improves and streamlines harvesting for cell culture separation in single-use bioprocesses by reducing the number of depth filtration cartridges required to complete the harvest process.

Key Questions Answered in This Report

1. What was the size of the global glycomics market in 2023?
2. What is the expected growth rate of the global glycomics market during 2024-2032?
3. What are the key factors driving the global glycomics market?
4. What has been the impact of COVID-19 on the global glycomics market?
5. What is the breakup of the global glycomics market based on the product?

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6. What is the breakup of the global glycomics market based on the application?
7. What is the breakup of the global glycomics market based on end user?
8. What are the key regions in the global glycomics market?
9. Who are the key players/companies in the global glycomics market?

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