

# Glycomics/Glycobiology Market Assessment, By Product Type [Enzymes, Kits, Reagents and Chemicals, Carbohydrates, Instruments], By Application [Drug Discovery and Development, Diagnostics, Others], By End-user [Academic and Research Institutes, Pharmaceutical and Biotechnology Companies, Clinical Laboratories, Contract Research Organizations], By Region, Opportunities and Forecast, 2017-2031F

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### **Report description:**

Global glycomics/glycobiology market is projected to witness a CAGR of 14.93% during the forecast period 2024-2031F, growing from USD 1.92 billion in 2023 to USD 5.85 billion in 2031F. The market has experienced significant growth in recent years and is expected to maintain a strong pace of expansion in the coming years.

Glycans' abnormal structures or glycosylation patterns are increasingly being connected to various diseases, like autoimmune disorders, diabetes, and cancer, as researchers continue to explore the intricacies of glycans and their interactions with other biomolecules. As a result, the discipline of glycomics aims to clarify glycan structures, functions, and effects on health and illness, signaling possible advances in identifying, managing, and creating new drugs. Numerous interconnected variables are driving the worldwide glycomics market's growth trajectory. Glycomomics has gained significant attention as a potential means of diagnosing and treating diseases, including diabetes and cancer, linked to aberrant glycosylation patterns. Due to these state-of-the-art tools, researchers may delve further into the complexity of glycans and their functional significance in both health and disease. The importance of glycomics in influencing the direction of healthcare is further highlighted by the paradigm shift towards personalized medicine. Glycan profiling has the potential to significantly increase the effectiveness and accuracy of medical interventions by offering tailored insights into customized treatment plans. The patient-centered approach to healthcare

emphasizes how important glycomics is to progress towards patient-centered therapeutic options. The rapidly growing biopharmaceutical sector is realizing how important glycan analysis is to creating biologics. For instance, on January 30, 2024, Navinci Diagnostics AB Corp, the leader in breakthrough in situ proximity ligation assay-based solutions, and Vector Laboratories, the pioneer of innovative proteomic and glycomic research solutions, announced the signing of an agreement. The collaboration aims to create innovative biomarker discovery techniques that will identify protein glycosylation in tissue samples for the first time.

#### Increasing Expenditure on Healthcare to Propel the Market

The steady rise in healthcare spending across the globe is providing a significant boom to the global glycomics market. Both public and commercial organizations are contributing more money to healthcare research and development projects, which drives investments in fields such as glycomics. An improved understanding of glycans' critical function in different biological processes and their consequences for human health is reflected in increased financial commitment. More emphasis is being given to comprehending and treating complicated diseases, many of which involve glycan-related processes, resulting from boosted healthcare spending. Thus, it is anticipated that in the upcoming years, there will be a huge need for glycomics research, diagnostics, and treatments.

The worldwide healthcare expenditure is expected to continue rising, and the glycomics market is expected to rise significantly. Innovation and advances in glycomics are expected to be fueled by the increased investment in healthcare research and development. Research centers, pharmaceutical corporations, and academic institutions working together are expected to propel the sector forward. These strategic alliances promote interdisciplinary cooperation, resource sharing, and exchange of knowledge, which creates an atmosphere that is favorable for ground-breaking discoveries and creation of glycan-based therapeutics. The demand for glycomics research and diagnostics is predicted to rise sharply as personalized medicine takes shape. Glycan profiling has great potential in offering individualized insights into diseases and treatment responses, particularly considering the growing emphasis on customizing medical therapies to each patient's unique biological profile. Therefore, glycomics has the potential to significantly contribute to the development of patient-centric healthcare solutions and spur additional growth.

The pharmaceutical industry is paying more attention to the medicinal potential of glycans in addition to research and diagnostics. With tremendous potential for treating numerous diseases, the field of glycan-based therapy development is a rapidly expanding drug discovery and development area. Improved patient outcomes, addressing unmet medical needs, and collaborative initiatives between academia and industry are anticipated to accelerate the translation of glycomics research into clinically relevant medicines. Due to the rising healthcare costs, more money is being spent on research and development, and the concerted efforts of players in the government, business, and academic sectors, the worldwide glycomics market is expected to rise significantly. For instance, Thermo Fisher Scientific Inc. and TransMIT GmbH Center for Mass Spectrometric Developments announced a co-marketing agreement in June 2022 to further promote the use of mass spectrometry imaging (MSI) platforms for spatial multi-omics applications in clinical and pharmaceutical laboratories.

Expanding Biopharmaceutical Research to Expand the Market

Over the past few decades, biopharmaceutical research has rapidly evolved, with a primary focus on creating novel medicines for a range of diseases and disorders. Glycomics is one of the fields to study that has attracted a lot of interest lately. Glycans are essential to many biological functions. Growth in the global glycomics market is significant as biopharmaceutical research is growing. Biopharmaceutical research is at the forefront of medical discovery and development, especially in the areas of immunology, infectious illnesses, and oncology. Glycomics is becoming more important to researchers and pharmaceutical businesses as a means of comprehending causes of illnesses and developing personalized treatments.

Glycomics research in the biopharmaceutical industry is growing due to several variables. Advances in personalized medicine necessitate a deeper comprehension of the distinct biomarkers, such as glycans, exclusive to each patient. Glycomics can customize treatments according to a patient's unique glycan profile, increasing therapeutic efficacy and reducing adverse effects. Cancer treatment has been transformed by immunotherapies and glycomics, which is essential for comprehending the glycan-based interactions that cancer cells have with the immune system. Glycan-targeted immunotherapies are being actively investigated by researchers to enhance the efficacy of cancer treatment. Since glycans are important in many infections, they are interesting targets for vaccine development.

Glycan-based vaccines are being funded by biopharmaceutical companies to fight infectious diseases such as COVID-19, HIV, and

influenza. Glycans are becoming more valuable as disease indicators. The discovery of glycan biomarkers that can help with early illness detection, disease monitoring, and therapy response assessment is being driven by biopharmaceutical research. The market for glycomics goods and services has grown significantly due to glycomics' growing significance in biopharmaceutical research. Technologies, including mass spectrometry, liquid chromatography, and glycan analysis kits, are included in the global glycomics market. It includes services such as glycoprotein characterization and glycan profiling. Innovation in glycomics research is being fostered by partnerships among research centers, pharmaceutical corporations, and university institutions. These collaborations aim to hasten the advancement of glycan-based treatments and diagnostics.

For instance, Bruker Corporation reported advances in glycoproteomics, immunopeptidomics, and other 4D proteomics workflows enabled by Collision Cross Section (CCS) on March 11, 2024. Rapid advancements in glycomics, peptidomics, and deep, at-scale proteomics research solutions from Bruker Corporation enhance its other industry-leading, high-performance life science technologies for the post-genomic era. When combined, they provide vital insights into disease biology and biomarkers for the development of next-generation molecular diagnostics and pharmaceuticals, as well as post-genomic molecular and cell biology research

### Increasing Dominance of the Drug Discovery Segment

Developing novel medications is becoming more necessary as chronic disease burdens rise. Glycans are essential for biological functions such as cell-to-cell contact, making them crucial for creating new drugs. Consequently, glycan chains are changed to create medications. For instance, hyaluronan, a naturally occurring glycosaminoglycan disaccharide unit, has several medicinal uses. It is crucial for treating osteoarthritis and is used in wound care following surgery. Studying glycans at the nanoscale can help with the development of vaccinations, medication delivery strategies, and biomolecular therapies for viruses and infectious disorders. Using glycoprotein expression systems and genetic engineering methods, glycan-based self-adjuvanted vaccines can be developed to enhance immunogenicity and vaccine response. Glycobiology is, therefore, crucial to creating vaccines, which fuels the market's expansion. The Mizutani Foundation for Glycoscience received 119 proposals for research grants from 28 different countries in February 2022. Following a thorough assessment of the projects' potential, scientific and social quality, and viability, the Foundation chose to fund 14 projects with grants totaling about USD 0.51 million. Therefore, Grants and approvals are anticipated to stimulate glycobiology research and development, accelerating the segment's growth.

North America to Dominate the Glycomics/Glycobiology Market

Opportunities for North America are anticipated to increase due to the growing prevalence of chronic diseases in the United States, government funding programs, and increased research and development. Cold Spring Harbour Laboratory Press (CSHL Press), a publisher of scientific books, journals, and electronic media, launched a new initiative in September 2022 to give access to the rapidly expanding subject of glycobiology in the United States. Support for the grant for CSHL Press comes from InterVenn Biosciences, a clinical technology business using glycoproteomics to change the face of healthcare. It suggests glycobiology is receiving more attention, which is anticipated to drive market expansion in the United States in the upcoming years. One of the developers of cutting-edge proteome and glycobiology solutions, Vector Laboratories, Inc. launched a new location in Newark, California, in March 2022. These immunofluorescence (IF) kits are fully integrated to detect glycan expression in tissue slices and allow the profiling and characterization of complex glycans in biological systems. Glycan research is becoming more popular as more academics are interested in studying glycobiology because of its possible influence on significant areas of medical research, such as oncology. Therefore, the market under study is anticipated to grow rapidly throughout the projected period due to the abovementioned factors.

## Future Market Scenario (2024 [] 2031F)

One of the main factors contributing to the anticipated growth of the glycomics/glycobiology market is the increasing prevalence of chronic disorders such as cancer and diabetes and the increasing popularity of personalized medicine approaches. A rising population and sedentary lifestyles are expected to propel the market growth in the forecast period. Given that technology is advancing, we can expect cutting-edge technology. Players in the market are expanding at an unparalleled rate, introducing cost-effective and efficient technologies. For instance, using unbiased lipidomics, glycomics, and metabolomics tissue imaging in conjunction with HiPLEX-IHC peptide code antibody probes from AmberGen, Bruker Corporation introduced a unique MALDI HiPLEX-IHC tissue imaging solution for timsTOF flex in April 2022.

Key Players Landscape and Outlook

Several companies are expanding their business by planning and adopting new strategies. They are complying with new strategic initiatives regarding the launches of newly developed products, to help researchers and to increase their presence in the market. New product launches, agreements based on contracts, acquisitions and mergers, investments and partnerships are a few ways through which they are trying to achieve the same.

As part of a larger investment, by 2025, Merck KGaA will invest over USD 320.93 million (EUR 300 million) in a new Life Science Research Center at its headquarters in Darmstadt in 2023. The facility's research efforts will be concentrated on finding solutions of mRNA applications, antibody synthesis, and other biotechnological products. Establishing operations in 2027 will further strengthen Merck's commitment to scientific progress.

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\*Companies mentioned above DO NOT hold any order as per market share and can be changed as per information available

during research work.

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