

Glycobiology Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

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Report description:

The glycobiology market is poised to register a CAGR of 14.6% over the forecast period.

Several vaccine development efforts related to COVID-19 primarily focused on the coronavirus transmembrane spike (S) glycoprotein, which extends from the viral surface and mediates host cell entry. A critical step in this crosstalk between the virus and the host cell is the binding of S-glycoprotein to the ACE2 receptor on the surface of human cells. Both S-glycoprotein and ACE2 receptors are known to be extensively glycosylated, i.e., they contain covalently linked complex oligosaccharides called glycans. This makes a promising research path on glycans during the pandemic. Many research studies proved that glycans are crucial in COVID-19 infection. A March 2021 research study by researchers at RIKEN Center for Computational Science (R-CCS) found that glycans sugar molecules play an essential role in the structural changes that occur when the virus causes COVID-19 to invade human cells.

According to a study published in the Journal of Molecular Biology in June 2021, glycan-binding proteins are involved in both human defense and the ability of viruses to infect. Drugs that should be considered for COVID-19 prevention and treatment include glycan antigens, anti-glycan antibodies, glycan-binding proteins, lectin inhibitors, polysaccharides, glycosidase inhibitors, and glycosides. Thus, the above-mentioned factors state that the global glycobiology market was significantly impacted by the COVID-19 pandemic. However, the market is currently gaining its pre-pandemic nature and is expected to witness healthy growth over the forecast period.

The major factor responsible for the growth of the glycobiology market is the increasing research and development activities about glycomes and emerging technology for analyzing glycans and proteomes. Glycans, generally present on the cell surface, play a crucial role in the body system. They are responsible for many hereditary diseases and have a vital role in cancer development. In December 2021, Griffith University's Institute for Glycomics of Australia received a grant of USD 1.80 million from the Australian Cancer Research Foundation (ACRF) to establish the ACRF International Centre for Cancer Glycomics. In August 2022, GlycoNet, a pan-Canadian network of Centers of Excellence centered at UAlberta, received a USD 10.68 million investment

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from the Canadian Foundation for Innovation's Major Science Initiative Fund to continue its mission of researching glycomics for the benefit of human health.

Thus, owing to the above-mentioned factors, the market studied is believed to witness strong growth over the forecast period.

Glycobiology Market Trends

Drug Discovery and Development is Expected to be the Largest Growing Segment

As the burden of chronic diseases increases, the need to develop new drugs is also increasing. Glycans play a key role in biological processes, such as cell-cell interaction, and thus have immense importance in drug development. Therefore, glycan chains are modified to synthesize drugs. For instance, hyaluronan, a naturally occurring disaccharide unit of glycosaminoglycan, has wide applications in medicine. It is used in post-surgical wounds and is essential in osteoarthritis treatment.

According to a study published in the International Journal of Nanomedicine in July 2021, glycan nanostructures are thought to be potential targets for molecular diagnosis, antiviral therapeutics, and vaccine development. The development of vaccines, drug delivery systems, and biomolecular therapeutics for viruses and infectious diseases can be enabled by studying glycans at the nanoscale. Glycan-based self-adjuvanted vaccines can be created to improve immunogenicity and vaccine response using glycoprotein expression systems and genetic engineering tools. Thus, glycobiology plays an essential role in the development of vaccines, thereby boosting the growth of the segment. In February 2022, Mizutani Foundation for Glycoscience received 119 research grant applications from 28 countries. After careful evaluation of scientific and social merit, potentiality, and feasibility, the Foundation decided to award grants of approximately USD 0.51 million to 14 projects. Thus, grants and approvals are expected to boost research and development in glycobiology, thereby boosting the growth of the segment.

North America is Expected to Dominate the Market Over the Forecast Period

The increasing research and development activities and government funding programs, along with the growing burden of chronic diseases in the United States, are expected to create more opportunities for the North America region. In September 2022, Cold Spring Harbor Laboratory Press (CSHL Press), a publisher of scientific books, journals, and electronic media established a new program to provide access to the field of glycobiology, which is developing rapidly across the United States. InterVenn Biosciences, a clinical technology company leveraging glycoproteomics to transform the future of healthcare, is involved in supporting the grant for CSHL Press. This indicates the increasing focus on glycobiology which is expected to fuel the market growth in coming years across the United States.

In March 2022, Vector Laboratories, the pioneer of innovative proteomic and glycobiology solutions, opened its new facility in Newark, California. These immunofluorescence (IF) kits enable the profiling and characterization of complex glycans in biological systems and are completely integrated for the detection of glycan expression in tissue sections. As more researchers express interest in studying glycobiology due to the potential impact it may have on important areas of illness research like oncology, glycan research is continuing to gain popularity. Hence, owing to the above-mentioned factors, the market studied is expected to witness strong growth over the forecast period.

Glycobiology Market Competitor Analysis

The glycobiology market is moderately competitive, with the presence of a considerable number of companies that significantly contribute to the market growth. New product launches, mergers and acquisitions, partnerships, and collaborations are the key strategies adopted by these companies for sustainable growth. Some key companies in the market include Agilent Technologies, Waters Corporation, Shimadzu Corporation, Merck KGaA, and New England Biolabs, among others.

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