

Genomics Market Assessment, By Products and Services [Products, Services], By Technology [PCR, Sequencing, Flow Cytometry, Microarrays, Nucleic Acid Extraction and Purification, Others], By Application [Drug Discovery and Development, Agriculture and Animal Research, Diagnostics, Precision Medicine, Others], By Study Type [Biomarker Discovery, Functional Genomics, Epigenomics, Pathway Analysis, Others], By End-user [Hospitals and Clinics, Pharmaceutical and Biotechnology Companies, Academic and Research Institutes, Others], By Region, Opportunities and Forecast, 2017-2031F

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Report description:

Global genomics market is projected to witness a CAGR of 16.55% during the forecast period 2024-2031F, growing from USD 35.28 billion in 2023 to USD 120.12 billion in 2031F. The market's expansion is supported by the rising efforts towards drug discovery and development, rapid expansion of the agriculture sector, increasing cases of chronic diseases such as cancer, growth of pharmaceutical and biotechnology companies, and rising collaborations between key market players and research institutions. The rising cases of cancer in various regions across the globe is one of the leading global genomics market trends that is supporting the expansion of the market. According to the estimates of the National Cancer Institute, 20 million new cases of cancer were reported in 2022 across the globe. This increase is propelling the requirement for cancer genomics as research in genomic changes that are caused because of cancer allows the development of drugs that aid in fighting the disease by blocking

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gene expression characteristics of cancer cells, inhibiting enzymes responsible for triggering abnormal growth, and halting molecular signaling pathways. Thus, boosting the market demand and providing lucrative growth opportunities to the market. The rapid expansion of the agriculture sector due to increasing population growth is boosting the global genomics market demand. The India Brand Equity Foundation (IBEF) estimates that 148.5 million tons of foodgrains were produced in 2023-2024 (Kharif only) in India. Genomics is expected to aid agriculturists in reducing the chances of failure in experiments and enhancing the quantity and quality of the yield. It also allows for the production of hybrids that possess desirable qualities by linking traits to gene signatures or genes, aiding scientists in the identification of desirable traits and aiding in crop improvement by characterizing molecular pathways involved with abiotic and biotic stress tolerance and identification of novel traits and sources of variations as well as genetic variations.

Technological Advancements Boost Market Growth

Advancements in bioinformatic techniques and genotyping are aiding the translation of genomics in clinical care, and advancements in genomics are aiding in enhancing knowledge about rare genetic diseases and disorders and their treatments. Advancements in genomics have been supported by the development of various sensitive sequencing technologies that have supported the discovery of various noncoding RNAs, including circular RNA. Additionally, advancements in genomics are boosted by the rising collaborations and partnerships between various biotechnology companies. In March 2024, Eurofins Genomics Europe Genotyping A/S and MGI Tech announced a collaboration for elevating precision health with the help of DNBSEQ-T20□2 Sequencer and related technologies. The sequencer is designed to address the different sequencing scenarios that can be challenging, including single-cell sequencing, among others. With this collaboration, the companies aim to improve the accessibility of sequencing that is cost effective for researchers across the globe and bolster advancements in genomics research.

Government Initiatives Support Market Expansion

The increasing number of government-supported and funded genome projects is boosting the global genomics market size. Such projects aid in the identification of genetic mutations in different regional populations that increase their vulnerability to specific diseases and support the development of treatment solutions. For instance, the Genome India Project, funded by the Ministry of Science and Technology, Government of India, is a country-wide collaboration that involves 20 national institutes and aims to develop a reference genome for the Indian population that will support the designing of genetic chips that are disease-specific and genome-wide for low-cost research and diagnostics. In January 2024, whole genome sequencing of over 10,000 individuals was completed and the data was achieved at the Indian Biological Data Centre (IBDC). The database is expected to be instrumental in conducting next generation clinical research in the country and foster large scale human genetic studies, which are expected to improve drug development and public health interventions.

North America is Expected to Account Significant Market Share

The expansion of the market in the region is supported by the rising investments towards the biotechnology sector, growing preference for personalized medicines, increasing cases of cancer, rapid expansion of the pharmaceutical sector, and novel product launches by key market players based in the region. According to the estimates of the National Cancer Institute, 2,000,000 individuals are expected to be diagnosed with cancer in 2024 in the United States.

Furthermore, the prevalence of several other chronic diseases and disorders is also increasing in the region, which in turn is boosting the research efforts of different pharmaceutical companies and research organizations towards drug discovery and development. The profiling of metabolomics, genomics, proteomics, and transcriptomics, among others, plays a crucial role in drug discovery. With the help of genomic analysis technologies such as next-generation sequencing (NGS), biotechnology and pharmaceutical sectors gain enhanced knowledge about the various genetic variants that are associated with diseases. The resulting insights can strengthen the multi-analyte tumor analysis and augment the development of targeted therapies. Researchers are also focusing on research activities to boost the efficacy of treatment plans in patients by evaluating how human genome variations affect the response of patients to different medications.

Academic and Research Institutes Witness Significant Growth

The rising investments in research activities due to the growing awareness about the various applications of genomics in various fields are supporting the expansion of the segment. With the help of pharmacogenomics, researchers are able to study the impact of human genome variations in dictating the response of a patient to different medications. This, in turn, allows healthcare professionals to reduce negative drug reactions, decrease the occurrence of side effects, and boost the intended use of a

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treatment or medication.

Additionally, research and academic institutions across the globe are also deploying pharmacogenomics analysis to determine the impact of different medications on patients. Tongji University (Shanghai, China) is conducting an interventional study to understand the genomic analysis of antidepressants. With the help of the Asian Screening Array (ASA) chip detection technology (Illumina, Inc.) and PCR gene chip detection method, the researchers are able to obtain the genetic information of polymorphic sites. In the intervention group, the pharmacogenomic analysis of antidepressants was completed prior to their usage, and the appropriate antidepressants were selected on the basis of the characteristics of pharmacodynamics and pharmacokinetics of the patient. The study is expected to conclude in December 2026.

Future Market Scenario (2024-2031F)

As per the global genomics market analysis, the market is expected to witness significant growth in the coming years. The increasing investments by various countries towards genomic medicine research will support this growth. In February 2024, the Australian government announced an investment of USD 330 million (AUD 500 million) in genomic research. The investment is expected to reduce the requirement of unnecessary interventions as well as healthcare costs and improve diagnostics and testing of various diseases, aiding healthcare providers to improve patient outcomes by personalizing treatment outcomes. The Genomics Health Futures Mission funds aim to boost the clinical utilization of genomics and transform the lives of Australians by delivering advanced treatment, testing, and diagnostic solutions. Such investments are expected to provide lucrative growth opportunities for the market. Additionally, advancements and innovations, including long-read and short-read technologies, analysis of gene lengths in humans, and sequencing of DNA in real time, are also anticipated to support the market's growth as they aid in the procurement of results in a time-efficient manner.

Key Players Landscape and Outlook

Rising collaborations between key market players and research institutes, and other major healthcare companies are boosting the global genomics market growth. In March 2024, Thermo Fisher Scientific Inc. and Bayer AG announced a collaboration to support the development of next-generation companion diagnostic assays. The assays will aid in identifying the patients that are eligible for precision cancer therapies provided by Bayer, and the partnership aims to provide rapid turnaround time and decentralized genomic testing. Companion diagnostics allows healthcare professionals to match patients with therapies most suitable to their requirements and is important for facilitating different approaches for personalized treatment. Thus, aiding healthcare professionals in providing advanced care to their patients.

In June 2024, Illumina announced a collaboration with National Cancer Centre Singapore (NCCS) to advance genomics research for rare cancers and will focus on profiling young adult and adolescent (AYA) lymphoma patients. This process will leverage NovaSeq 6000 systems, Illumina's genome sequencing platforms, to study the genetic links between disease and health and provide better treatment and diagnosis. This effort is expected to provide valuable insights and enhance patient outcomes and care in the Asian population as the classification systems used historically have not been studied in them.

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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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