Genomics Market Report and Forecast 2025-2034

Market Report | 2025-06-20 | 400 pages | EMR Inc.

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Report description:

The genomics market was valued at USD 45.77 Billion in 2024, driven by advancements in genetic research and personalised medicine across the globe. The market is anticipated to grow at a CAGR of 10.20% during the forecast period of 2025-2034, with values likely to reach USD 120.89 Billion by 2034. The genomics market is expanding rapidly due to advancements in gene therapy, rising demand for personalized medicine, and breakthroughs in drug discovery. Increasing cancer incidence fuels the need for Comprehensive Genomic Profiling (CGP), aiding early detection and targeted therapies. Additionally, the surge in consumer genomics services has driven market growth, enabling individuals to explore their genetic predispositions. Key industry players are strengthening their positions through joint ventures and partnerships, fostering innovation and accelerating the development of next-generation genomic solutions.

The COVID-19 pandemic has significantly influenced the genomics market, increasing reliance on genomics technology for infectious disease research and outbreak management. Therapeutics and diagnostics have advanced, particularly through PCR techniques for detecting the viral genome. The crisis also accelerated vaccine development and the search for anti-viral treatments, solidifying the role of genomics in modern medicine. The continued integration of therapeutics into healthcare systems highlights its long-term impact on medical advancements.

Global Genomics Market Trends

The growing adoption of genomic surveillance has been instrumental in tracking viral mutations, especially during the pandemic. Organizations like INSACOG have played a crucial role in monitoring SARS-CoV-2 variants through advanced sequencing technologies. The rise of consumer genomics services has also gained momentum, with companies such as Mapmygenome offering DTC genomics solutions for personalized health insights. The continuous sequencing of SARS-CoV-2 has enabled public health agencies to implement targeted interventions, emphasizing the importance of genomics in pandemic preparedness.

Advancements in cancer genomics have revolutionized the diagnosis and treatment of inherited cancers by providing a deeper understanding of the human genome. The emergence of gene therapies and gene editing technologies, particularly CRISPR-Cas

gene technology, has paved the way for precision genome editing. Researchers are also exploring genomic interventions for inherited retinal diseases (IRDs), offering potential curative treatments. These innovations highlight the transformative role of genomics in addressing hereditary disorders and improving targeted therapies. For instance, In December , CRISPR Therapeutics' Phase 1/2 trial of CTX112 showed strong efficacy in B-cell malignancies, leading to FDA's RMAT designation. Regulatory discussions for further development are planned, with updates expected in mid-2025.

The increasing adoption of high-throughput sequencing has enhanced genomic research, with Next-Generation Sequencing (NGS) and microarrays providing comprehensive analysis of genomic data. Advancements in DNA sequencing have facilitated large-scale studies, such as the Phenome-wide association study (PheWAS) and genome-wide association study (GWAS), to identify links between genotype and phenotype. Additionally, integrating genomic insights with Electronic Health Records (EHRs) has strengthened precision medicine, enabling clinicians to make informed, data-driven treatment decisions.

Strategic collaborations, expansions, and acquisitions are accelerating genomics advancements, supported by increasing capital investments in research. Companies like Genomics England are leveraging long-read sequencing to better understand genetic variation in rare diseases and rare disorders. Initiatives to re-sequence genomes have identified key mutations, facilitating breakthroughs in drug discovery. Industry leaders, including PacBio, are driving innovation, and Genomics England continues to play a pivotal role in identifying genetic links to rare diseases, further solidifying the market's growth trajectory.

Global Genomics Market Report Segmentation

Genomics Market Report 2025-2034 offers a detailed analysis of the market based on the following segments:

Market Breakup by Offering

- Products?
??- Instruments/Systems
??- Software
??- Consumables & Reagents

- Services

??- NGS-based Services
??- Core Genomics Services
??- Biomarker Translation Services
??- Computational Services
??- Others

Market Breakup by Technology

- Sequencing
- PCR
- Flow Cytometry
- Microarrays
- Others

Market Breakup by Application

- Drug Discovery and Development
- Functional Genomics
- Biomarker Discovery
- Pathway Analysis
- Epigenomics
- Diagnostics?

??- Infectious Diseases
??- Reproductive Health
??- Others

Market Breakup by End User

- Pharmaceutical and Biotechnology Companies
- Hospitals and Clinics
- Diagnostic Laboratories
- Academic and Research Institutes
- Others

Market Breakup by Region

- North America
- Europe
- Asia Pacific
- Latin America
- Middle East and Africa

Market Concentration & Characteristics

The genomics market is characterized by high market concentration, with a few dominant players leading innovation and investment. Key companies such as Thermo Fisher Scientific, QIAGEN, Oxford Nanopore Technologies, and 23andMe hold significant market shares, leveraging cutting-edge technologies to drive industry advancements. These firms continuously expand their portfolios through acquisitions, partnerships, and joint ventures, intensifying competition. The presence of established biotechnology firms and emerging startups further shapes the market, ensuring a dynamic and rapidly evolving landscape.

One of the defining characteristics of the genomics market is its strong focus on research and development (R&D). Companies heavily invest in next-generation sequencing (NGS), gene therapy, and CRISPR-based gene editing, aiming to enhance diagnostic accuracy and treatment efficacy. The growing demand for personalised medicine fuels advancements in genomic data analysis and bioinformatics tools, enabling precise patient stratification and targeted therapies. Recognising the importance of genomic research, the Australian Government has approved the NHMRC Grant Program 2024-25 , allocating USD 5.9 million to support Australian Genomics. This funding will drive new and ongoing projects, advancing genomic technologies in healthcare and informing policy development. With a nationally coordinated approach and collaborations across government bodies, this initiative strengthens genomic research and its integration into clinical practice. As a result, the industry sees continuous improvements in sequencing speed, accuracy, and affordability, ensuring greater accessibility and effectiveness of genomics-driven healthcare solutions.

The market also exhibits a high degree of technological integration, with AI and machine learning playing a crucial role in

analyzing massive genomic datasets. The adoption of cloud-based genomic platforms enhances collaboration between researchers, healthcare providers, and pharmaceutical companies. Additionally, the integration of genomics with electronic health records (EHRs) streamlines data sharing, supporting evidence-based clinical decision-making. Such technological advancements are pivotal in expanding the application of genomics in drug discovery, oncology, and rare disease research.

Another critical characteristic is regulatory influence, which shapes product approvals, ethical considerations, and data privacy frameworks. Regulatory bodies such as the FDA, EMA, and regulatory agencies in Asia-Pacific establish guidelines for the development and commercialization of genomic therapies. Stringent compliance requirements for genetic testing, clinical trials, and patient data protection impact market entry and expansion strategies. As governments increasingly support genomic research through funding and policy initiatives, regulatory frameworks continue to evolve.

Lastly, the genomics market is marked by global expansion, with emerging economies such as China, India, and Brazil becoming key growth contributors. These regions witness rising investments in genomic research, fueled by government initiatives and private-sector funding. The increasing prevalence of genetic disorders, cancer, and infectious diseases drives demand for advanced genomic solutions. As affordability improves and awareness grows, the market is poised for significant expansion, ensuring that genomics remains at the forefront of modern healthcare innovation.

Application Insights

The genomics market finds extensive applications in drug discovery and development, functional genomics, biomarker discovery, and pathway analysis, epigenomics and diagnostics, driving advancements in disease research and personalised treatments. In diagnostics and drug discovery, genomics enables early disease detection and targeted drug development. The integration of genomics into precision medicine allows tailored therapies based on individual genetic profiles, improving patient outcomes in oncology, neurology, and rare diseases.

Beyond healthcare, genomics plays a crucial role in agriculture and animal research, enhancing crop resilience, livestock breeding, and food security. Advanced genomic tools assist in identifying desirable genetic traits, leading to improved productivity and sustainability. Expanding applications in forensic science, bioengineering, and synthetic biology further solidify genomics as a transformative force across multiple industries.

Offering Insights

The genomics market is driven by products, including sequencing instruments, reagents, and consumables, which are fundamental for research and clinical applications. Continuous advancements in next-generation sequencing (NGS) and microarray technologies enhance efficiency, affordability, and accessibility. Companies invest heavily in R&D to introduce high-throughput and cost-effective genomic solutions, accelerating market growth. As demand for precision medicine and genetic testing increases, manufacturers focus on improving sequencing accuracy and speed while reducing costs.

Software and services play a pivotal role in genomics by enabling data analysis, interpretation, and storage. AI-powered bioinformatics tools facilitate genomic sequencing and variant detection, improving diagnostic accuracy. Cloud-based platforms allow seamless data sharing and collaboration among researchers, hospitals, and pharmaceutical firms, driving precision medicine initiatives. Additionally, advancements in machine learning and big data analytics enhance genomic research efficiency.

The services segment includes NGS-based services, core genomics services, biomarker translation services, computational services and others. With rising demand for personalised medicine and genomic research, service providers expand offerings in genetic counselling, whole genome sequencing, and ancestry analysis. As technological integration improves, software and services will continue enhancing genomic applications globally, providing actionable insights for drug discovery, disease

prevention, and clinical decision-making.

End-User Insights

Based on end user, the market is segmented into pharmaceutical and biotechnology companies, hospitals and clinics, diagnostic laboratories, academic and research institutes and others. Biotechnology and pharmaceutical companies are expected to dominate the genomics market, leveraging advanced sequencing technologies and bioinformatics tools for drug discovery and clinical applications. Healthcare facilities and clinical research organisations integrate genomics for precision medicine, disease diagnostics, and genetic counselling. The rising demand for genomic-based therapies, prenatal screening, and tailored treatment plans strengthens genomics adoption. Additionally, the expansion of direct-to-consumer genetic testing enhances accessibility, driving industry growth across multiple sectors.

Academic and research institutes play a crucial role in advancing genomic research by funding large-scale projects, such as population genomics and disease mapping. These institutions drive innovation by collaborating with biotechnology firms, conducting clinical trials, and developing new diagnostic techniques. Increased government funding and public-private partnerships fuel genomic advancements, facilitating breakthrough discoveries in personalised medicine, rare disease research, and drug development. Universities and research centres also focus on genomic data analysis, CRISPR gene editing, and biomarker discovery, accelerating scientific progress.

Technology Insights

By technology, the market is segmented into sequencing, PCR, flow cytometry, microarrays and others. Sequencing technologies, including next-generation sequencing (NGS), enable rapid and high-throughput analysis of genetic material, revolutionising research and clinical diagnostics. Microarray technology is widely used for gene expression profiling and mutation analysis, while PCR (Polymerase Chain Reaction) remains essential for amplifying DNA and RNA in genomic studies. Nucleic acid extraction and purification techniques ensure sample integrity, crucial for accurate sequencing and disease detection.

Regional Insights

North America dominates the genomics market, driven by advanced research infrastructure, significant government funding, and strong industry presence. The United States leads in genomic sequencing, personalised medicine, and drug discovery, supported by key players such as Thermo Fisher Scientific and Illumina. Growing adoption of next-generation sequencing (NGS) and bioinformatics solutions enhances precision medicine initiatives. Additionally, favourable regulatory policies and increasing investment in cancer genomics and rare disease research further strengthen market growth across the region.

Europe holds a substantial share in the genomics industry, backed by strong biotechnology and pharmaceutical sectors. Countries like Germany, the UK, and France actively invest in genomic data analysis, CRISPR gene editing, and biomarker discovery. Initiatives such as Genomics England and Horizon Europe drive innovation, fostering collaborations between academic institutes, healthcare providers, and industry leaders. The demand for genetic diagnostics and precision medicine fuels market expansion across the region.

Asia Pacific is emerging as a high-growth genomics market, propelled by increasing government funding, expanding biotechnology firms, and rising investments in genomic sequencing and data analytics. Countries like China, Japan, and India focus on genome sequencing projects, cancer research, and infectious disease studies. The growing demand for affordable genetic testing and direct-to-consumer genomics services is reshaping the industry. Meanwhile, Latin America, the Middle East, and Africa witness gradual market expansion, driven by rising healthcare investments and partnerships with global genomic companies.

Key Companies & Market Share Insights

The genomics market is highly competitive, with key players investing in research, acquisitions, and partnerships to strengthen their market position. Companies such as Agilent Technologies, Bio-Rad Laboratories, BGI Genomics, and Color Genomics drive innovation in genomic sequencing, molecular diagnostics, and personalised medicine. Strategic collaborations, technological advancements, and expanding service portfolios enhance their market influence, shaping the future of genomic research, diagnostics, and precision medicine globally.

Agilent Technologies

A leader in genomic analysis and diagnostics, Agilent provides microarrays, next-generation sequencing (NGS) solutions, and bioinformatics tools. Its strong R&D investment and partnerships with research institutes bolster its global presence.

Bio-Rad Laboratories, Inc.

Specialises in PCR technology, gene expression analysis, and genomic data solutions. Its cutting-edge molecular biology tools support cancer research, drug discovery, and genetic testing applications.

BGI Genomics

A major player in genomic sequencing services, BGI leads population genomics and disease research with cost-effective solutions. It collaborates with global institutions for precision medicine and agricultural genomics.

Color Genomics, Inc.

Focuses on consumer genomics and hereditary disease testing, offering affordable genetic testing services for cancer risk assessment, cardiovascular diseases, and pharmacogenomics, expanding accessibility in personalised medicine.

Other companies in the market include Illumina, Inc., Thermo Fisher Scientific Inc., Danaher Corporation, F. Hoffmann La Roche, QIAGEN, Revvity, Charles River Laboratories, and Becton, Dickinson and Company.

Recent Developments

- In January 2024, Veracyte, a global diagnostics company headquartered in the United States, acquired C2i Genomics, a biotechnology company based in Israel known for its minimal residual disease (MRD) tests in a USD 95 million deal. This acquisition aims to employ AI-assisted whole-genome MRD tests to expand the cancer diagnostics range.
- In January 2024, Qiagen, a multinational provider of molecular testing solutions based in Germany, received the United States Food and Drug Administration (FDA) approval for NeuMoDx CT/NG Assay employing integrated PCR-based clinical molecular testing system, NeuMoDx 96 and 288 Molecular Systems. This assay utilizing fully automated analysers is designed to provide a rapid and precise diagnosis of sexually transmitted infection (STI).
- In February 2023, Accenture Ventures made a strategic investment in Ocean Genomics, a technology and AI company based in the United States to assist biopharma companies by creating computational platforms. The investment is expected to expedite the development of personalized medicines and artificial intelligence-driven drug discovery.
- In August 2023, a research article published in Nature revealed that scientists completed the sequencing of the human Y chromosome. It led to an addition of 30 million new bases in the human genome reference by end-to-end sequencing. The new research is poised to facilitate a better understanding of variation and associated diseases, offering improved therapeutic

solutions to critical ailments.
- In November 2023, the UK Medicines and Health Regulatory Authority (MHRA) approved a CRISPR-based gene therapy known as Casgevy or Exa-cel. This genome-edited cellular therapy utilizes the CRISPR/Cas9 system to produce healthy red blood cells in people with beta-thalassemia and sickle cell disease.
- In January 2023, CAR-T cell therapy, which works by using genetically modified T cells to identify and destroy specific cancer cells, cured a 13-year-old patient suffering from leukaemia.

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