

Global Functional Genomics Market Size study, by Product (Kits Assays, Instruments), by Technology (Next-Generation Sequencing (NGS), Polymerase Chain Reaction (PCR), Microarray, Other Technologies), by Application (Epigenomics, Transcriptomics, Proteomics, Metabolomics), by End-User (Academic and Research Institutions, Biotechnology and Biopharmaceutical Companies, Others) and Regional Forecasts 2022-2032

<https://marketpublishers.com/r/G052320E5139EN.html>

Date: August 2024

Pages: 200

Price: US\$ 4,950.00 (Single User License)

ID: G052320E5139EN

Abstracts

Global Functional Genomics Market was valued at USD 9.54 billion in 2023 and is anticipated to project robust growth in the forecast period with a compound annual growth rate (CAGR) of 9.25% through 2029. Functional genomics, a rapidly advancing sector within the biotechnology field, focuses on the systematic study of gene functions and interactions within an organism. This discipline is pivotal for understanding the underlying mechanisms of diseases, thus driving significant growth in the market. The expansion of the functional genomics market is propelled by the rising prevalence of genetic disorders, cancer, and infectious diseases, which in turn, increases the demand for advanced research and development activities. Also, technological innovations such as CRISPR-Cas9, RNA interference, and next-generation sequencing (NGS) are crucial in functional genomics studies, enabling precise gene editing and comprehensive analysis of gene expression patterns. These technologies facilitate groundbreaking research and offer new possibilities in personalized medicine, significantly contributing to market growth. Pharmaceutical and biotechnology companies are major players in this domain, investing heavily in cutting-edge technologies to discover novel drug targets and develop personalized therapeutic interventions. The integration of artificial

intelligence (AI) and big data analytics further enhances the efficiency of functional genomics research, opening new avenues for understanding, diagnosing, and treating various genetic conditions.

The rising demand for technological advancements is a key driver of market growth. Innovations in genomic sequencing technologies, notably NGS, have revolutionized genomic analysis by improving speed, accuracy, and cost-effectiveness. These advancements have democratized functional genomics, enabling large-scale genomic sequencing and broader adoption of genomic research. Additionally, recent developments in single-cell genomics have expanded the scope of functional genomics, allowing for detailed insights into cellular heterogeneity and the complexity of biological systems. The integration of big data analytics and bioinformatics is another significant growth driver. These fields provide essential tools for managing and analyzing the vast and intricate genomic data sets generated by functional genomics. The use of advanced computational tools and visualization techniques enables researchers to derive actionable insights from genomic data, driving the discovery of potential diagnostic or prognostic biomarkers and contributing to the development of personalized treatment strategies. However, the market faces challenges related to data privacy and security. The sensitive nature of genomic information necessitates robust frameworks to prevent unauthorized access and misuse. Establishing global standards for data privacy and security, along with advancements in encryption technologies, is crucial for maintaining public trust and ethical standards in genomic research.

North America currently dominates the global functional genomics market, supported by a robust research infrastructure, extensive funding, and a high concentration of leading biotechnology and pharmaceutical companies. The region's leadership is further bolstered by supportive government initiatives, a skilled workforce, and collaborations between academia and industry. The presence of advanced technologies and a favourable regulatory environment positions North America as a focal point for cutting-edge research and innovation in functional genomics.

Major market players included in this report are:

Agilent Technologies, Inc.

Becton, Dickinson and Company

Bio-Rad Laboratories, Inc.

Danaher Corporation (Integrated DNA Technologies, Inc.)

F. Hoffmann-La Roche Ltd.

Illumina, Inc.

MRM Proteomics Inc

Perkin Elmer, Inc.

QIAGEN N.V.

Thermo Fisher Scientific, Inc.

The detailed segments and sub-segment of the market are explained below:

By Product:

- Kits Assays
- Instruments

By Technology:

- Next-Generation Sequencing (NGS)
- Polymerase Chain Reaction (PCR)
- Microarray
- Other Technologies

By Application:

- Epigenomics
- Transcriptomics
- Proteomics
- Metabolomics

By End-User:

- Academic and Research Institutions
- Biotechnology and Biopharmaceutical Companies
- Others

By Region:

North America

- U.S.
- Canada

Europe

- UK
- Germany
- France
- Spain
- Italy
- ROE

Asia Pacific

- China
- India
- Japan
- Australia
- South Korea
- RoAPAC

Latin America

- Brazil

- Mexico
- RoLA

Middle East & Africa

- Saudi Arabia
- South Africa
- RoMEA

Years considered for the study are as follows:

- Historical year – 2022
- Base year – 2023
- Forecast period – 2024 to 2032

Key Takeaways:

- Market Estimates & Forecast for 10 years from 2022 to 2032.
- Annualized revenues and regional level analysis for each market segment.
- Detailed analysis of geographical landscape with Country level analysis of major regions.
- Competitive landscape with information on major players in the market.
- Analysis of key business strategies and recommendations on future market approach.
- Analysis of competitive structure of the market.
- Demand side and supply side analysis of the market.

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