

Global Next-generation Sequencing Library Preparation Market Size study, by Sequencing Type (Targeted Genome Sequencing, Whole Genome Sequencing), by Product, by Application, by End-use, and Regional Forecasts 2022-2032

<https://marketpublishers.com/r/G1128BAC9410EN.html>

Date: May 2025

Pages: 285

Price: US\$ 3,750.00 (Single User License)

ID: G1128BAC9410EN

Abstracts

The Global Next-generation Sequencing (NGS) Library Preparation Market is valued approximately at USD 1.57 billion in 2023 and is anticipated to grow with a compound annual growth rate of more than 13.00% over the forecast period 2024-2032. NGS library preparation lies at the heart of modern genomics, acting as a critical preliminary step in the sequencing workflow that determines the efficiency, depth, and quality of genetic data output. The process involves the fragmentation of nucleic acids and the addition of specialized adapters to facilitate sequencing. As the applications of NGS broaden across clinical diagnostics, oncology, infectious disease surveillance, and agricultural genomics, the demand for robust, high-throughput, and automation-friendly library preparation solutions is accelerating significantly. Researchers and clinicians are increasingly opting for streamlined workflows that minimize input quantity, reduce errors, and enable simultaneous analysis of multiple targets, all of which amplify the significance of library preparation technologies in the expanding genomics ecosystem.

The market growth is driven by several transformative factors. The rise in demand for precision medicine and personalized therapies has escalated the need for targeted genome and whole genome sequencing—two major applications that depend heavily on efficient library preparation protocols. Pharmaceutical companies and research laboratories are investing in advanced reagents, automation platforms, and integrated systems to enhance data reproducibility and throughput. Furthermore, innovations such as bead-based normalization, transposase-based methods, and enzymatic fragmentation are reducing turnaround times while preserving data integrity. However,

despite technological advancements, market growth is partially hindered by challenges like high initial capital expenditure for sequencing infrastructure and the technical complexity associated with some library prep kits, especially when dealing with degraded or limited input samples.

A key trend influencing the landscape is the growing focus on miniaturization and multiplexing capabilities in library prep systems. This shift is aimed at improving the scalability and cost-effectiveness of NGS for large population studies and clinical trials. Companies are racing to develop all-in-one library prep kits compatible with multiple sequencing platforms and adaptable to a wide range of sample types—from blood to FFPE tissue to microbial DNA. Additionally, the integration of machine learning algorithms for quality control during library prep stages is gaining traction. These solutions are enabling end-users to predict sequencing outcomes and optimize protocols, further enhancing reliability. The confluence of automation, informatics, and consumables innovation is thus driving a wave of next-gen tools that address both research and clinical needs across the globe.

Regionally, North America remains the epicenter of the NGS library preparation market, primarily due to its strong presence of genomic research institutions, significant funding from NIH and other agencies, and early adoption of clinical NGS. The United States in particular has established a mature ecosystem of NGS service providers, life science tool manufacturers, and academic collaborators. Europe follows closely, supported by large-scale genomic initiatives in countries like the UK, Germany, and the Netherlands. Meanwhile, Asia Pacific is projected to be the fastest-growing region, spurred by government-led genomic projects in China and India, increasing healthcare investments, and the presence of a growing number of CROs and clinical diagnostic companies. These developments across geographies signify a global shift towards genomics-enabled healthcare and data-driven life sciences.

Major market player included in this report are:

Illumina, Inc.

Thermo Fisher Scientific Inc.

Agilent Technologies, Inc.

QIAGEN N.V.

PerkinElmer, Inc.

New England Biolabs

F. Hoffmann-La Roche Ltd.

Takara Bio Inc.

BGI Group

Bio-Rad Laboratories, Inc.

Oxford Nanopore Technologies

Integrated DNA Technologies (IDT)

Zymo Research Corporation

Pacific Biosciences of California, Inc.

Nugen Technologies, Inc.

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

By Sequencing Type

Targeted Genome Sequencing

Whole Genome Sequencing

By Product

Kits

Reagents

Instruments

Others

By Application

Oncology

Infectious Disease

Genetic Testing

Reproductive Health

Others

By End-use

Academic and Research Institutes

Pharmaceutical and Biotechnology Companies

Hospitals and Diagnostic Laboratories

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

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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