

Global DNA-encoded Library Market Size study, by Product & Service (Products, Services), by Therapeutic Area (Oncology, Infectious Diseases), by Application (Hit Generation / Identification), by End Use and Regional Forecasts 2022-2032

<https://marketpublishers.com/r/G358B6B7618DEN.html>

Date: May 2025

Pages: 285

Price: US\$ 3,218.00 (Single User License)

ID: G358B6B7618DEN

Abstracts

The Global DNA-encoded Library Market is valued at approximately USD 0.66 billion in 2023 and is projected to expand at a compelling CAGR of more than 13.40% during the forecast period 2024-2032. DNA-encoded libraries (DELs) have swiftly emerged as a disruptive screening technology, drastically transforming early-stage drug discovery by enabling the simultaneous evaluation of billions of small molecules against biological targets. This groundbreaking approach harnesses DNA sequences as unique barcodes, thereby encoding the identity of individual compounds and allowing rapid, high-throughput binding assays using next-generation sequencing. As the pharmaceutical industry relentlessly pursues novel molecular entities with higher specificity and therapeutic impact, DELs are revolutionizing hit identification workflows through their unmatched scalability, accuracy, and cost efficiency.

Driven by the escalating need for precision therapeutics—especially in oncology and infectious diseases—DELs have found profound utility in uncovering rare binders against difficult targets. The market is riding high on continuous innovation in library design, synthetic chemistry techniques, and target screening strategies. Furthermore, leading biopharmaceutical players are actively integrating DELs into their in-house discovery platforms or partnering with contract research organizations that specialize in DEL screening services. However, despite the compelling advantages, the market faces headwinds such as the complexity of downstream hit validation, challenges in linker design, and limitations with certain protein targets that impede DNA compatibility. Nonetheless, the industry is addressing these gaps through CRISPR integration,

improved chemical diversity, and novel encoding formats.

As DELs evolve from a niche technology to a standard practice across medicinal chemistry pipelines, their role in reshaping drug discovery economics is becoming increasingly evident. Many organizations are adopting DEL services to complement traditional screening methods and enrich compound libraries with functionally diverse scaffolds. Advances in artificial intelligence and bioinformatics are further refining the selection of hits, expediting the transition from identification to lead optimization. The convergence of DELs with machine learning-enabled target deconvolution and protein modeling has the potential to unlock first-in-class compounds for previously undruggable targets. This synergy is enabling researchers to extrapolate actionable insights from massive datasets, streamlining development timelines and enhancing the probability of clinical success.

The growing traction of DNA-encoded library technologies is also being propelled by a paradigm shift toward outsourcing and collaboration. Startups and CROs specializing in DEL screening are forging strategic alliances with top pharmaceutical and biotech companies to extend platform capabilities. Moreover, as global healthcare systems struggle with rising R&D costs and declining ROI on new drug approvals, DELs are gaining attention for their ability to minimize resource expenditure while maximizing chemical space exploration. Emerging applications in antimicrobial resistance research, epigenetic modulation, and biomarker-driven screening are positioning DELs as a cornerstone of next-generation drug discovery ecosystems.

Geographically, North America dominates the Global DNA-encoded Library Market, driven by advanced infrastructure, robust pharmaceutical pipelines, and a high concentration of key industry players and research institutions. The United States, in particular, leads in innovation with widespread adoption of DEL platforms by both established companies and biotech innovators. Europe follows closely, supported by government-funded drug discovery programs and the proliferation of early-stage biotech firms across Germany, Switzerland, and the UK. Meanwhile, Asia Pacific is poised for accelerated growth, with countries like China and Japan investing heavily in genomic research and collaborative drug development initiatives. Latin America and the Middle East & Africa represent emerging frontiers, gradually integrating DELs through multinational partnerships and increased biomedical research funding.

Major market player included in this report are:

GlaxoSmithKline

X-Chem

HitGen Inc.

Vipergen ApS

WuXi AppTec

Novartis AG

Nuevolution AB

Philochem AG

Amgen Inc.

Bayer AG

AbbVie Inc.

Merck & Co., Inc.

Pfizer Inc.

Roche Holding AG

Eli Lilly and Company

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

By Product & Service

Products

Services

By Therapeutic Area

Oncology

Infectious Diseases

By Application

Hit Generation / Identification

By End Use

Pharmaceutical and Biotechnology Companies

Academic and Research Institutes

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.

Contents

CHAPTER 1. GLOBAL DNA-ENCODED LIBRARY MARKET EXECUTIVE SUMMARY

- 1.1. Global DNA-encoded Library Market Size & Forecast (2022-2032)
- 1.2. Regional Summary
- 1.3. Segmental Summary
 - 1.3.1. By Product & Service
 - 1.3.2. By Therapeutic Area
 - 1.3.3. By Application
 - 1.3.4. By End Use
- 1.4. Key Trends
- 1.5. Recession Impact
- 1.6. Analyst Recommendation & Conclusion

CHAPTER 2. GLOBAL DNA-ENCODED LIBRARY MARKET DEFINITION AND RESEARCH ASSUMPTIONS

- 2.1. Research Objective
- 2.2. Market Definition
- 2.3. Research Assumptions
 - 2.3.1. Inclusion & Exclusion
 - 2.3.2. Limitations
 - 2.3.3. Supply Side Analysis
 - 2.3.3.1. Availability
 - 2.3.3.2. Infrastructure
 - 2.3.3.3. Regulatory Environment
 - 2.3.3.4. Market Competition
 - 2.3.3.5. Economic Viability (Consumer's Perspective)
 - 2.3.4. Demand Side Analysis
 - 2.3.4.1. Regulatory Frameworks
 - 2.3.4.2. Technological Advancements
 - 2.3.4.3. Environmental Considerations
 - 2.3.4.4. Consumer Awareness & Acceptance
- 2.4. Estimation Methodology
- 2.5. Years Considered for the Study
- 2.6. Currency Conversion Rates

CHAPTER 3. GLOBAL DNA-ENCODED LIBRARY MARKET DYNAMICS

Global DNA-encoded Library Market Size study, by Product & Service (Products, Services), by Therapeutic Area (...)

3.1. Market Drivers

- 3.1.1. Rising demand for high-throughput hit identification
- 3.1.2. Increased R&D investment in oncology and infectious diseases
- 3.1.3. Partnerships between pharma and DEL service providers

3.2. Market Challenges

- 3.2.1. Complexity of downstream hit validation
- 3.2.2. Technical limitations in linker design and encoding
- 3.2.3. Compatibility issues with certain protein targets

3.3. Market Opportunities

- 3.3.1. Integration with AI-driven lead optimization
- 3.3.2. Expansion into novel therapeutic modalities
- 3.3.3. Growth of outsourced DEL screening services

CHAPTER 4. GLOBAL DNA-ENCODED LIBRARY MARKET INDUSTRY ANALYSIS

4.1. Porter's 5 Force Model

- 4.1.1. Bargaining Power of Suppliers
- 4.1.2. Bargaining Power of Buyers
- 4.1.3. Threat of New Entrants
- 4.1.4. Threat of Substitutes
- 4.1.5. Competitive Rivalry
- 4.1.6. Futuristic Approach to Porter's 5 Force Model
- 4.1.7. Porter's 5 Force Impact Analysis

4.2. PESTEL Analysis

- 4.2.1. Political
- 4.2.2. Economical
- 4.2.3. Social
- 4.2.4. Technological
- 4.2.5. Environmental
- 4.2.6. Legal

4.3. Top Investment Opportunities

4.4. Top Winning Strategies

4.5. Disruptive Trends

4.6. Industry Expert Perspective

4.7. Analyst Recommendation & Conclusion

CHAPTER 5. GLOBAL DNA-ENCODED LIBRARY MARKET SIZE & FORECASTS BY PRODUCT & SERVICE (2022-2032)

5.1. Segment Dashboard

5.2. Revenue Trend Analysis, 2022 & 2032 (USD Million/Billion)

5.2.1. Products

5.2.2. Services

CHAPTER 6. GLOBAL DNA-ENCODED LIBRARY MARKET SIZE & FORECASTS BY THERAPEUTIC AREA (2022-2032)

6.1. Segment Dashboard

6.2. Revenue Trend Analysis, 2022 & 2032 (USD Million/Billion)

6.2.1. Oncology

6.2.2. Infectious Diseases

CHAPTER 7. GLOBAL DNA-ENCODED LIBRARY MARKET SIZE & FORECASTS BY APPLICATION (2022-2032)

7.1. Segment Dashboard

7.2. Revenue Trend Analysis, 2022 & 2032 (USD Million/Billion)

7.2.1. Hit Generation / Identification

CHAPTER 8. GLOBAL DNA-ENCODED LIBRARY MARKET SIZE & FORECASTS BY END USE (2022-2032)

8.1. Segment Dashboard

8.2. Revenue Trend Analysis, 2022 & 2032 (USD Million/Billion)

8.2.1. Pharmaceutical and Biotechnology Companies

8.2.2. Academic and Research Institutes

8.2.3. Others

CHAPTER 9. GLOBAL DNA-ENCODED LIBRARY MARKET SIZE & FORECASTS BY REGION (2022-2032)

9.1. North America DNA-encoded Library Market

9.1.1. U.S.

9.1.1.1. Product & Service breakdown size & forecasts, 2022-2032

9.1.1.2. Therapeutic Area breakdown size & forecasts, 2022-2032

9.1.2. Canada

9.2. Europe DNA-encoded Library Market

- 9.2.1. UK
- 9.2.2. Germany
- 9.2.3. France
- 9.2.4. Spain
- 9.2.5. Italy
- 9.2.6. Rest of Europe
- 9.3. Asia Pacific DNA-encoded Library Market
 - 9.3.1. China
 - 9.3.2. India
 - 9.3.3. Japan
 - 9.3.4. Australia
 - 9.3.5. South Korea
 - 9.3.6. Rest of Asia Pacific
- 9.4. Latin America DNA-encoded Library Market
 - 9.4.1. Brazil
 - 9.4.2. Mexico
 - 9.4.3. Rest of Latin America
- 9.5. Middle East & Africa DNA-encoded Library Market
 - 9.5.1. Saudi Arabia
 - 9.5.2. South Africa
 - 9.5.3. Rest of Middle East & Africa

CHAPTER 10. COMPETITIVE INTELLIGENCE

- 10.1. Key Company SWOT Analysis
 - 10.1.1. GlaxoSmithKline
 - 10.1.2. X-Chem
 - 10.1.3. HitGen Inc.
- 10.2. Top Market Strategies
- 10.3. Company Profiles
 - 10.3.1. GlaxoSmithKline
 - 10.3.1.1. Key Information
 - 10.3.1.2. Overview
 - 10.3.1.3. Financial (Subject to Data Availability)
 - 10.3.1.4. Product Summary
 - 10.3.1.5. Market Strategies
 - 10.3.2. X-Chem
 - 10.3.3. HitGen Inc.
 - 10.3.4. Vipergen ApS

- 10.3.5. WuXi AppTec
- 10.3.6. Novartis AG
- 10.3.7. Nuevolution AB
- 10.3.8. Philochem AG
- 10.3.9. Amgen Inc.
- 10.3.10. Bayer AG
- 10.3.11. AbbVie Inc.
- 10.3.12. Merck & Co., Inc.
- 10.3.13. Pfizer Inc.
- 10.3.14. Roche Holding AG
- 10.3.15. Eli Lilly and Company

CHAPTER 11. RESEARCH PROCESS

- 11.1. Research Process
 - 11.1.1. Data Mining
 - 11.1.2. Analysis
 - 11.1.3. Market Estimation
 - 11.1.4. Validation
 - 11.1.5. Publishing
- 11.2. Research Attributes

I would like to order

Product name: Global DNA-encoded Library Market Size study, by Product & Service (Products, Services), by Therapeutic Area (Oncology, Infectious Diseases), by Application (Hit Generation / Identification), by End Use and Regional Forecasts 2022-2032

Product link: <https://marketpublishers.com/r/G358B6B7618DEN.html>

Price: US\$ 3,218.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:

info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <https://marketpublishers.com/r/G358B6B7618DEN.html>