

Global Drug And Gene Delivery Devices Market Size study, by Route Of Administration (Oral, Inhalation, Transdermal), by Vector (Viral, Non-Viral), and Regional Forecasts 2022-2032

<https://marketpublishers.com/r/G83F840ADF77EN.html>

Date: May 2025

Pages: 285

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

ID: G83F840ADF77EN

Abstracts

The Global Drug And Gene Delivery Devices Market is valued at approximately USD 0.67 billion in 2023 and is projected to grow at a compound annual growth rate of more than 9.00% over the forecast period 2024 to 2032. The field of drug and gene delivery is undergoing a monumental transformation, redefining how therapeutics are introduced into the human system with enhanced precision, targeted efficacy, and minimized systemic toxicity. As chronic diseases and genetic disorders continue to impose a global health burden, innovations in delivery technologies have emerged as pivotal enablers in facilitating site-specific delivery and controlled release of pharmaceuticals and genetic material. The paradigm shift from traditional drug administration to sophisticated device-assisted delivery has catalyzed a new wave of therapeutic strategies that are safer, more effective, and personalized.

The market's momentum is reinforced by the convergence of biomedical engineering and molecular biology, which has yielded a diverse suite of administration platforms—from inhalation-based aerosols for respiratory gene therapies to transdermal patches offering non-invasive sustained release of active ingredients. The oral route remains predominant due to patient compliance advantages, while gene therapies using viral vectors like adeno-associated viruses (AAVs) and lentiviruses are setting new benchmarks in oncology, neurology, and rare disease treatment. Concurrently, the rapid rise of non-viral vectors, propelled by lipid nanoparticles and CRISPR-based systems, is reshaping the delivery landscape, offering safer and scalable alternatives to conventional gene delivery pathways. These trends reflect a broader transition toward precision-driven therapies enabled by optimized delivery architecture.

Nevertheless, the market is not without its barriers. Stringent regulatory scrutiny, particularly for gene-based therapeutics, along with the technical complexity of vector design and delivery optimization, present considerable challenges. High development costs, potential immunogenicity, and manufacturing bottlenecks for viral vectors are additional impediments. Despite this, significant investments from government bodies, academic institutions, and biopharmaceutical giants signal strong confidence in the sector's growth potential. Advances in biodegradable polymers, smart nanocarriers, and real-time drug release monitoring systems continue to elevate the performance and safety profile of delivery devices.

Regionally, North America stands at the forefront of the drug and gene delivery devices market, driven by extensive R&D activities, a robust clinical pipeline, and favorable regulatory frameworks. The United States, in particular, benefits from a well-established ecosystem that supports early-stage innovation, rapid commercialization, and widespread clinical adoption. Europe follows closely, underpinned by proactive government funding for genetic research and the presence of prominent healthcare infrastructure in nations like Germany, France, and the UK. Meanwhile, the Asia Pacific region is poised to demonstrate the fastest growth throughout the forecast period, owing to surging demand for advanced therapeutics, rising healthcare expenditures, and expanding biotech sectors in countries such as China, India, and South Korea. Latin America and the Middle East & Africa are also expected to gain traction through increasing international collaborations and improving access to biologics and gene therapy platforms.

Major market player included in this report are:

F. Hoffmann-La Roche Ltd

Novartis AG

Becton, Dickinson and Company

3M Company

Pfizer Inc.

Johnson & Johnson

Gilead Sciences, Inc.

Merck & Co., Inc.

AstraZeneca PLC

Amgen Inc.

Sanofi S.A.

Teva Pharmaceutical Industries Ltd.

AbbVie Inc.

Bluebird Bio, Inc.

Bayer AG

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

By Route Of Administration

Oral

Inhalation

Transdermal

By Vector

Viral

Non-Viral

By Region:

North America

U.S.

Canada

Europe

UK

Germany

France

Spain

Italy

Rest of Europe

Asia Pacific

China

India

Japan

Australia

South Korea

Rest of Asia Pacific

Latin America

Brazil

Mexico

Rest of Latin America

Middle East & Africa

Saudi Arabia

South Africa

Rest of Middle East & Africa

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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