

Global Gene Delivery Technologies Market to Reach USD 15.50 Billion by 2034, growing at a CAGR of 11.1%

Gene delivery technologies market valuation is expected to grow from USD 5.42 bn in 2024 to reach USD 15.50 billion by 2034, driven by demand for gene therapy.

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Gene delivery technologies transform healthcare by enabling specific & effective gene therapies, thereby driving innovation, improving treatment outcomes, & accelerating research throughout the world”

Polaris Market Research

The global [gene delivery technologies market size](#) was valued at USD 5.42 billion in 2024, according to Polaris Market Research, and is expected to grow at a 11.1% CAGR from 2025 to 2034. It will reach USD 15.50 billion by 2034. Gene delivery technologies encompass techniques for safely and efficiently inserting genes into cells. Applications range from the treatment of genetic disorders and the development of [gene therapy](#) to the study of disease mechanisms and the advancement of medical research. In simpler language, they are carriers that deliver new or modified genes into cells with the hope of correcting a

malfunction or enhancing functionality.

For more information, visit [https://www.polarismarketresearch.com/industry-analysis/gene-delivery-technologies-market/request-for-sample](#)

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Polaris Market Research provides an overview of the key driving factors, industry segments, and regional trends in the gene delivery technologies market.

□ The increasing prevalence of genetic disorders and other diseases is driving demand for technologies enabling gene delivery for targeted therapies.

□ The biological mode, especially viral vector-based systems, accounted for the biggest share in 2024 due to the widespread use in the treatment of a number of rare and chronic diseases.

□ According to a segment of the report, ex vivo methods dominated in 2024 and were widely used to modify cells obtained from patients before transplantation.

□ Oncology is expected to record the highest CAGR by 2034 because of the increasing use of gene therapy for cancer treatment.

□ In 2024, the academic and research institution segment dominated the market due to increased use of gene delivery technologies across laboratory and experimental research.

□ North America had the largest market share in 2024, driven by advanced delivery systems, strong R&D, and favorable regulations.

□ The market share in Europe is considerable, driven by its strong pharma and biotech industries and the increasing number of clinical trials.

□ With growing awareness about gene therapies and an ever-increasing patient population, Asia Pacific is the fastest-growing region.

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The gene delivery technologies Market continues to surge. What's behind this impressive growth? Let's understand the key factors, technological advancements, and challenges driving the market, as highlighted by Polaris Market Research.

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Rising Prevalence of Genetic Disorders and Chronic Diseases: The increasing prevalence of genetic and chronic diseases has driven demand for gene-delivery technologies from healthcare service providers seeking better treatment modalities.



Gene Delivery Technologies Market

Rising demand for gene therapy coupled with growing prevalence of genetic disorders and chronic diseases worldwide is driving the market growth.

Key Insights

- Biological segment led in 2024 due to high adoption of viral vectors.
- Oncology segment expected to grow fastest, driven by cancer gene therapies.
- North America dominated in 2024 with strong biotech infrastructure.
- Asia Pacific to grow fastest with rising patient population and awareness.



Gene Delivery Technologies Market

Growing Prevalence of Genetic Disorders: The rising number of cases is driving demand for effective gene delivery systems. Increasing awareness related to hereditary diseases is driving personalized medicine and next-generation delivery technologies.

Genetic disorders are becoming more prevalent, driving the need for effective gene delivery systems.

Rising Demand for Gene Therapy: The growing need for gene therapy, driven by rising cases of rare, chronic, and genetic disorders, is driving the adoption of next-generation gene-delivery technologies. Patients and healthcare providers increasingly seek better treatment outcomes and more personalized care through advanced solutions.

Innovation in Gene Delivery Technologies: Key players are advancing viral and non-viral vectors, AI-assisted platforms, and CRISPR therapies for improved safety and efficacy. Joint research collaborations and wider market reach accelerate their adoption worldwide.

Gene delivery technologies are being used to treat a wide range of genetic disorders, including rare diseases.

High Development Costs: The development and commercialization of gene delivery technologies are capital intensive. Such research, clinical trials, and regulatory approval are expensive due to their complexity, which slows down wider diffusion and innovation.

Gene delivery technologies are being used to treat a wide range of genetic disorders, including rare diseases.

The growth of major segments propelling the market is highlighted, along with an explanation of key forces driving their growth.

Gene delivery technologies are being used to treat a wide range of genetic disorders, including rare diseases.

In 2024, the biological segment dominated the market owing to the wide usage of viral vector-based systems for gene delivery, particularly in the treatment of rare genetic disorders and chronic diseases.

Also, the chemical segment will see the fastest growth due to innovations in non-viral chemical vectors. Their improved safety and effectiveness are encouraging wider usage in research and clinical applications.

Gene delivery technologies are being used to treat a wide range of genetic disorders, including rare diseases.

In 2024, the ex vivo segment dominated the market due to its extensive use in modifying patient-derived cells prior to transplantation and in personalized gene therapy within hospitals and research institutes.

Additionally, the in vivo segment will grow fastest, driven by increasing demand for the direct administration of genes to patients and by advances in viral and non-viral vectors to improve treatment outcomes globally.

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In 2024, academic and research institutes led the market due to heavy use in laboratory and experimental studies, supported by funding and collaborative programs in gene delivery technologies.

Moreover, the pharmaceutical and biotech segment is poised to grow the most, driven by increasing gene therapy development, [oncology clinical trials](#), and strategic partnerships that spur the commercialization of advanced delivery systems.

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According to Polaris Market Research, some specific regions are emerging as key drivers of growth in the gene delivery technologies market. Which regions are leading the way?

North America: North America dominates the gene delivery technologies market, driven by widespread adoption of advanced delivery systems, robust healthcare infrastructure, strong R&D, and favorable government policies.

U.S.: The US leads the market due to rising rates of genetic and chronic diseases. Strong clinical research, investments in biotech, and reimbursement policies support the adoption in hospitals and research centers.

Europe: The region accounts for a major share of the market, driven by the growing use of gene therapies for various rare and chronic disorders. Strong pharmaceutical and biotech industries, together with the surge in clinical trials, force technology adoption and create more avenues.

Asia Pacific: The market is experiencing the fastest growth rate, driven by rising awareness of gene therapies and a growing patient population with genetic disorders. Further increases in diagnostics and healthcare access accelerate adoption across the region.

China: Government support for gene therapy, along with the increasing prevalence of genetic disorders and a large patient population, has been driving market growth. Collaborations between local biotech firms and international companies are further enhancing growth.

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The gene delivery technologies market remains fairly competitive, with several companies rapidly developing viral and non-viral platforms using AI, CRISPR-based therapies, and digital

tracking. The collaboration with research institutes, hospitals, and biotech firms contributes to greater reach and adoption worldwide.

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- Agilent Technologies, Inc.: Provides advanced laboratory instruments and reagents supporting gene delivery research and development.
- Bio-Rad Laboratories, Inc.: It offers a portfolio of tools and platforms that support gene expression analysis and viral vector production.
- Bio-Techne Corporation: Supplies reagents, proteins, and gene-editing tools used in research on gene delivery and therapy.
- Danaher Corporation: The company provides instruments and solutions for improving workflows in gene therapy research and tissue engineering.
- GenScript Biotech Corp.: Provides custom gene synthesis, viral vectors, and gene delivery solutions for therapeutic applications.
- Lonza Group AG: Supplies viral vectors, non-viral delivery systems, and cell and gene therapy manufacturing solutions.
- MaxCyte, Inc.: Develops cell-engineering platforms to improve the efficiency of gene delivery for therapeutic applications.
- Merck KGaA: Provides viral and non-viral vectors, reagents, and gene editing technologies for research and clinical applications.
- QIAGEN N.V.: It supplies nucleic acid purification kits, viral vectors, and gene delivery tools for research and clinical studies.
- Revvity, Inc.: Offers solutions for gene editing and delivery to streamline therapeutic development.
- Oxford Biomedica PLC: Focuses on viral vector development for gene and cell therapies.
- Promega Corporation: Offers a variety of enzymes, reagents, and tools that support gene delivery and molecular biology research.
- Sartorius AG: This company provides bioprocessing technologies and equipment to support gene delivery and cell therapy production.
- Takara Bio USA, Inc.: Developing viral and non-viral gene delivery systems, CRISPR tools, and cell engineering solutions.
- Thermo Fisher Scientific, Inc.: Offers a broad portfolio of gene delivery reagents, viral vector manufacturing, and CRISPR-based technologies for use in research and clinical settings.

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August 2025: Merck KGaA announced a collaboration with Skyhawk Therapeutics. The company stated that the partnership is aimed at developing RNA-targeting gene delivery technologies to treat neurological conditions.

May 2025: GenScript released a GMP-like mRNA manufacturing solution. According to GenScript, the platform aims to speed up early-stage drug development and gene delivery.

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- Biological
- Adenovirus
- Retrovirus
- AAV
- Lentivirus
- Other Viruses
- Non-viral
- Chemical
- Physical

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- Ex vivo
- In vivo
- In vitro

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- Infectious Diseases
- Oncology
- Ophthalmology
- Urology
- Diabetes
- CNS
- Others

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- Academic & Research Institutes
- Pharmaceutical & Biotechnology Companies
- Other End Users

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- North America
- The U.S.
- Canada
- Europe

- Germany
- France
- UK
- Italy
- Spain
- Netherland
- Russia
- Rest of Europe
- Asia Pacific
- China
- India
- Japan
- Malaysia
- South Korea
- Indonesia
- Australia
- Rest of Asia Pacific
- Latin America
- Mexico
- Brazil
- Argentina
- Rest of Latin America
- South Africa
- Saudi Arabia
- UAE
- South Africa
- Israel
- Rest of South Africa

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Q - What is the gene delivery technologies market size and growth forecast?

Ans -The global gene delivery technologies market is valued at USD 5.42 billion in 2024 and is expected to reach USD 15.50 billion by 2034, growing at a CAGR of 11.1%, driven by rising demand for gene therapy.

Q - Which delivery modes and methods lead the gene delivery technologies market?

Ans - Among the biological modes, viral vectors dominate, and there is a wide range of ex vivo methods for modifying patient-derived cells. The fastest-growing are non-viral vectors and in vivo methods.

Q - What are the factors driving market growth?

Ans - The key drivers are the rising prevalence of genetic disorders, growing demand for gene therapy, and technological innovations such as CRISPR and AI-assisted delivery platforms.

Q - Which regions are growing fastest?

Ans - The market is growing fastest in Asia Pacific due to increasing awareness and a rising patient population. North America holds the largest market share, driven by the U.S., and Europe is still important due to its strong pharma and biotech industries.

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