

Gene Delivery Systems Market to Reach USD 7,313 Million by 2035 | Amgen, Pfizer, Novartis Lead – Fact.MR

*Gene Delivery Systems Market Analysis,
By Delivery (Viral Gene Delivery, Non-viral
Gene Delivery), By Route of
Administration, By Application, and By
Region*



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/EINPresswire.com/ -- The global [gene delivery systems market](#) is expected to reach USD 7,313 million by 2035, up from USD 3,439 million in 2024. During the forecast period 2025 to 2035, the industry is projected to expand at a CAGR of 7.1%. This robust expansion is fueled by advancements in gene therapy, rising prevalence of genetic disorders, and increasing investments in biotechnology and personalized medicine. The market is driven by the critical role gene delivery systems play in facilitating gene therapy, vaccine development, and genetic engineering, enabling precise delivery of genetic material to target cells. The United States leads with a projected CAGR of 6.3%, followed closely by the U.K. at 7.8% and China at 7.6%. Despite its promising outlook,

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Gene Delivery Systems Market Technology Development

Technological advancements are at the core of the gene delivery systems market, with significant progress in both viral and non-viral delivery methods. Viral gene delivery, which holds a dominant 66% market share in 2025, leverages vectors such as adeno-associated viruses (AAVs), lentiviruses, and retroviruses for their high transfection efficiency and sustained gene expression. Innovations in viral vector engineering, such as improved capsid design and reduced immunogenicity, have enhanced safety and efficacy, as seen in FDA-approved therapies like Luxturna and Zolgensma. Non-viral delivery systems, growing at a CAGR of 5.8%, are gaining traction due to their lower immunogenicity and cost-effectiveness.

Gene Delivery Systems Market Demand and Impact Analysis

The demand for gene delivery systems is driven by the rising prevalence of genetic disorders, cancer, and rare diseases, which necessitate effective gene-based therapies. The global increase in clinical trials for conditions like hemophilia, muscular dystrophy, and sickle cell disease is fueling the need for reliable delivery systems. Oncology, a leading application segment, benefits from gene delivery in therapies like CAR T-cell therapy and oncolytic viral treatments, with FDA-approved drugs like Kymriah and Yescarta driving market growth. The success of mRNA vaccines has further highlighted the potential of injectable gene delivery systems, particularly those using LNPs, which offer high specificity and reduced toxicity.

Government initiatives and increased funding for precision medicine are significant demand drivers. In the U.S., the 21st Century Cures Act has bolstered investment in gene therapy research, while in the U.K., programs like the Biomedical Catalyst Fund support R&D for novel delivery systems. In China, the “Made in China 2025” initiative promotes domestic production of gene therapy products, boosting market activity. However, challenges such as high development costs, immune responses to viral vectors, and regulatory hurdles like GMP and GLP compliance could restrain growth.

Gene Delivery Systems Market Analysis by Top Investment Segments

The gene delivery systems market is segmented by delivery method (viral and non-viral), route of administration (oral, injectable, inhalation, transdermal, ocular, nasal, others), application (infectious diseases, oncology, CVD, urology, CNS, others), and region. The viral gene delivery segment, growing at a CAGR of 7.7%, dominates due to its high efficiency and precision, particularly in applications like oncology and rare disease therapies. Non-viral delivery, while less efficient, is an attractive investment due to its lower cost and reduced immunogenicity, with applications in mRNA therapies and CRISPR-based treatments.

Gene Delivery Systems Market Across Top Countries

1. United States: The U.S. market, supported by a strong biotech ecosystem and regulatory framework, is projected to grow at a CAGR of 6.3% through 2035. Investments in gene therapy research, driven by initiatives like the 21st Century Cures Act, and advancements in CRISPR and LNP technologies are key growth factors.

2. United Kingdom: The U.K. leads Europe with a projected CAGR of 7.8%, fueled by government-funded R&D, such as the Biomedical Catalyst Fund, and collaborations between biotech firms and the NHS. Innovations in AAV and nanoparticle-based vectors are driving market expansion.

Leading Gene Delivery Systems Companies and Their Industry Share

The gene delivery systems market is highly competitive, with major players leveraging innovation and strategic partnerships to maintain dominance. Key companies include Amgen, Inc., Bayer AG, Pfizer, Inc., Novartis AG, Johnson & Johnson, Human Stem Cells Institute, Oxford Biomedica

plc, Shanghai Sunway Biotech Co., Ltd., Sibiono GeneTech Co. Ltd., and Bluebird Bio, Inc. Novartis, with its focus on xRNA-based medicines, as seen in its August 2024 partnership with Versant Ventures to form Borealis Biosciences, is a market leader. Pfizer and Amgen are notable for their investments in viral vector technologies, while Oxford Biomedica excels in AAV-based therapies

Gene Delivery Systems Market Historic and Future Pathway Analysis

From 2020 to 2024, the gene delivery systems market grew at a CAGR of 6.4%, driven by increasing regulatory approvals for gene therapies and advancements in delivery technologies. The market size increased from USD 3,439 million in 2024 to a projected USD 7,313 million by 2035. The shift toward non-viral delivery systems and the success of mRNA vaccines have reshaped the market, with growing applications in oncology and rare diseases.

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Gene Delivery Systems Industry News

1.August 2024: Novartis partnered with Versant Ventures to establish Borealis Biosciences, focusing on xRNA-based medicines for kidney diseases, advancing renal science through innovative delivery systems.

2.January 2024: GenEdit and Genentech's collaboration, valued at up to \$644 million, aims to develop novel nanoparticles for nucleic acid delivery, targeting autoimmune diseases with non-viral technologies.

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