

Report Information

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Viral Vectors and Plasmid DNA Manufacturing Market Research Report—Global Forecast till 2032

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Description:

Global Viral Vectors and Plasmid DNA Manufacturing Market Overview

Viral Vectors and Plasmid DNA Manufacturing Market Size was valued at USD 0.3 billion in 2022 and is projected to grow from USD 0.35 Billion in 2023 to USD 1.1 billion by 2032, exhibiting a compound annual growth rate (CAGR) of 16.1% during the forecast period (2023 - 2032). Increasing rates of infectious illnesses and hereditary abnormalities and a growing number of market participants engaged in introducing new products, strategic alliances, acquisitions, and geographic growth are the key market drivers enhancing the Viral Vectors and Plasmid DNA Manufacturing market growth.

Viral Vectors and Plasmid DNA Manufacturing Market Overview

Source: Secondary Research, Primary Research, MRFR Database and Analyst Review

Viral Vectors and Plasmid DNA Manufacturing Market Trends

- **Increasing rates of infectious illnesses and hereditary abnormalities will boost Viral Vectors and Plasmid DNA Manufacturing market growth**

Recently, the frequency of hereditary and infectious disorders has increased dramatically. In the US, an estimated 100,000 persons had sickle cell anemia in 2019, according to a National Institutes of Health (NIH) publication. It is anticipated that the growing use of gene therapy to treat viral infections like adeno-associated viruses, poxviruses, herpes simplex viruses, and retroviruses will increase the adoption of gene therapies, which will, in turn, help to fuel the market growth of the production of viral vectors and plasmid DNA shortly.

The worldwide industry is being driven by an increase in the number of patients choosing gene therapy. The demand for plasmid DNA is soaring as gene therapy research and development picks up steam. Hence, pDNA (Plasmid DNA) production is necessary for Adeno-associated virus (AAV), lentivirus, and other viral vector systems. Moreover, several hereditary disorders and infectious diseases are spreading across the globe. For instance, according to UNAIDS figures, 1.7 million persons acquired HIV in 2019, and 38.0 million people worldwide were living with the disease. Therefore, the medical condition has enhanced the Viral Vectors and Plasmid DNA Manufacturing market CAGR globally in recent years.

In order to purify the adeno-associated virus (= AAV) vectors used in gene treatments, GE Healthcare Life Sciences (US) and Children's Medical Research Institute (Australia) embarked on cooperation. The collaboration's main goal was to improve the chromatographic separation of AAV-based vectors using a variety of AAV variants. Furthermore, it is envisaged that these partnerships would increase the manufacturing effectiveness and scalability of gene therapies, enabling the availability of viral vectors worldwide and creating profitable market prospects. Market participants are also utilizing outside funds to expand their business activities. For example, Albumedix (UK) and Cobra Biologics (US) worked together in April 2021 to handle AAV and lentiviral vectors both upstream and downstream. The partnership aims to increase stability. For instance, there have been several advancements for Viral Vectors and Plasmid DNA Manufacturing implants, another factor driving the growth of the Viral Vectors and Plasmid DNA Manufacturing market revenue.

Viral Vectors and Plasmid DNA Manufacturing Market Segment Insights

Viral Vectors and Plasmid DNA Manufacturing Vector Type Insights

The Viral Vectors and Plasmid DNA Manufacturing Market segmentation, based on Vector Type,

includes Plasmid DNA, Viral Vector, and Non-viral Vector. The Viral Vector segment held the majority share in 2022, contributing around ~50-55% concerning the Viral Vectors and Plasmid DNA Manufacturing Market revenue. Due to its use in most cell-based gene treatments, the viral vector manufacturing market is anticipated to have the highest CAGR growth over the projected period. The capacity to integrate with big transgenes and the simplicity of manufacturing at high titers are two key characteristics that allow this vector to hold a sizable portion of the market.

Figure 1: Viral Vectors and Plasmid DNA Manufacturing Market, by vector type, 2022 & 2030 (USD billion)

Viral Vectors and Plasmid DNA Manufacturing Market, by vector type, 2022 & 2030

Source: Secondary Research, Primary Research, MRFR Database and Analyst Review

Viral Vectors and Plasmid DNA Manufacturing Disease Type Insights

Disease Type has bifurcated the Viral Vectors and Plasmid DNA Manufacturing Market data into Cancer, Genetic Disorders, and Infectious Diseases. The Cancer segment dominated the Viral Vectors and Plasmid DNA Manufacturing market in 2022 and is projected to be the faster-growing segment during the forecast period, 2022-2030. The market expanded due to several research initiatives, an increase in the use of vectors for the creation of cancer medicines, and recent approvals of gene therapy products. Companies have a strong pipeline of cancer gene therapy products, which is anticipated to spur market expansion throughout the projected period. The effectiveness of viral vector-based therapeutics used to cure genetic abnormalities is the subject of several research papers. The use of gene therapy in treating conditions like X-linked chronic granulomatous disease, Duchenne muscular dystrophy (DMD), and Rett syndrome is a genetic ailment.

Viral Vectors and Plasmid DNA Manufacturing Applications Insights

Based on Applications, the global Viral Vectors and Plasmid DNA Manufacturing industry has been segmented into Antisense & RNAi Therapy, Gene Therapy, Cell Therapy, Vaccinology, and Research. In 2022, the vaccine sector had the biggest Viral Vectors and Plasmid DNA Manufacturing market share (24.76%). This is due to the widespread use of viral vectors in vaccine development due to their efficiency-related benefits. The ability to trigger a broad immunological response, safety profiles and ease of manufacture are all positives. In addition, EMA has approved the usage of AAV for clinical use as it can express episomal genes without integrating itself into the host genome. Furthermore, efforts to design and optimize vaccination regimens would drive the development of new vaccines.

Viral Vectors and Plasmid DNA Manufacturing Workflow Insights

Disease Type has bifurcated the Viral Vectors and Plasmid DNA Manufacturing Market data into Upstream Processing and Downstream Processing. The Downstream Processing surgery segment dominated the Viral Vectors and Plasmid DNA Manufacturing market in 2022 and is projected to be the faster-growing segment during the forecast period, 2022-2030, due to the extremely complicated processes used to polish and purify clinical grade final goods. Also, there is a greater need for improving downstream processing due to the rising demand for viral vectors due to their expanded use as treatments. Small-scale viral preparation techniques sometimes involve sophisticated and challenging steps to scale up. To assure the number of viruses combined with enhanced quality, numerous scalable commercial procedures are being researched and refined, and these elements fuel the sector's market expansion.

Viral Vectors and Plasmid DNA Manufacturing End User Insights

The Viral Vectors and Plasmid DNA Manufacturing Market segmentation, based on End users, includes Pharmaceutical and Biopharmaceutical Companies and Research Institutes. The Research Institutes segment dominated the Viral Vectors and Plasmid DNA Manufacturing market in 2022 and is projected to be the faster-growing segment during the forecast period 2022-2030. Because of the high need for viral vectors for research, it is anticipated that the growing engagement of scientific communities in gene and cell therapy research will boost the demand for viral vectors. In addition, the market for viral vectors and plasmid DNA synthesis is seeing the emergence of research institutions and pharmaceutical and biopharmaceutical firms as major end-users, which is helping to drive the development of sophisticated drugs and an increasing number of gene therapy-based R&D initiatives. One of these companies, Abeona Therapeutics, is exploring AAV9-based gene therapies for CLN1 and CLN3 illnesses. It will thus encourage market expansion. Hence, rising applications of metal material implants for Viral Vectors and Plasmid DNA Manufacturing positively impact the market growth.

Viral Vectors and Plasmid DNA Manufacturing Regional Insights

By Region, the study provides market insights into North America, Europe, Asia-Pacific and the Rest of the World. North America Viral Vectors and Plasmid DNA Manufacturing market accounted for USD 0.13 billion in 2022 and is expected to exhibit a significant CAGR growth during the study period. The existence of a sizable number of centers and institutions involved in the R&D of advanced medicines is one of the key reasons that has led to the huge share of this regional market. The federal agencies' investments in the Region's cell therapy research base are expected to boost the market's expansion in North America.

Further, the major countries studied in the market report are The U.S., Canada, Germany, France, the UK, Italy, Spain, China, Japan, India, Australia, South Korea, and Brazil.

Figure 2: VIRAL VECTORS AND PLASMID DNA MANUFACTURING MARKET SHARE BY REGION 2022 (%)

Source: Secondary Research, Primary Research, MRFR Database and Analyst Review

According to estimates, the Asia Pacific Viral Vectors and Plasmid DNA Manufacturing market would have the quickest growth due to factors including the growing patient population and increased R&D spending in this area. Also, because this location's legal environment is less severe, patients from western nations are flying there for stem cell therapy. Global businesses have also changed their business strategies in this Region due to the enormous regional population and untapped potential. Also, this area provides reasonably priced operational & manufacturing facilities for performing research. These elements are anticipated to significantly contribute to the development of the stem cell sector in this area and accelerate the market's expansion. Moreover, China Viral Vectors and Plasmid DNA Manufacturing held the largest market share. The India Viral Vectors and Plasmid DNA Manufacturing market was the fastest-growing market in the Asia-Pacific region.

Due to growing technological advancements in the healthcare industry and the growing understanding of the utilization of plasmid DNA, the European Viral Vectors and Plasmid DNA Manufacturing market holds the third-largest market share. Further, the Germany Viral Vectors and Plasmid DNA Manufacturing market held the largest market share. The UK Viral Vectors and Plasmid DNA Manufacturing market was the fastest-growing market in the European Region.

Key Market Players & Competitive Insights

Leading market players are investing a lot of money in R&D to expand their product portfolios, which will spur further market growth for Viral Vectors and Plasmid DNA Manufacturing. With significant industry changes, including new product releases, contractual agreements, mergers and acquisitions, increased investments, and collaboration with other organizations, market developments are also undertaking various strategic activities to expand their global presence. To grow and remain in a market that is becoming more and more competitive, Viral Vectors and Plasmid DNA Manufacturing industry competitors must provide affordable products.

Manufacturing locally to cut operational costs is one of the main business tactics used by the Viral Vectors and Plasmid DNA Manufacturing industry to serve customers and increase the market sector. The Viral Vectors and Plasmid DNA Manufacturing industry have recently given medicine some of the most important advantages. In the Viral Vectors and Plasmid DNA Manufacturing market, major players such as Medtronic Inc (Ireland), Abbott Laboratories (US), Stryker Corporation (US), and others are working on expanding the market demand by investing in research and development activities.

An American provider of scientific equipment, reagents, and consumables, as well as software services, is Thermo Fisher Scientific Inc. Thermo Fisher, headquartered in Waltham, Massachusetts, was created in 2006 by the union of Thermo Electron and Fisher Scientific. Thermo Fisher Scientific Inc. announced in July 2021 the opening of a new cGMP plasmid DNA manufacturing facility in Carlsbad, California, to meet the rising demand for plasmid DNA-based medicines and essential mRNA-based vaccines.

Charles River Laboratories International, Inc. specializes in the preclinical and clinical laboratory, gene therapy, and cell therapy services for the pharmaceutical, medical device, and biotechnology sectors. May 2021 saw the announcement that Charles River Laboratories International Inc had purchased US-based Vigene Biosciences, a contract development and manufacturing organization (CDMO) for cell and gene therapy (CGT) that provided viral vector-based delivery solutions for both research and clinical applications.

Key Companies in the Viral Vectors and Plasmid DNA Manufacturing market include

- Cognate BioServices Inc. (US)
- Catalent Pharma Solutions (US)
- Fujifilm Holdings Corporation (Japan)
- Johnson & Johnson (US)
- Sanofi Corporation (France)
- Hoffmann-LA Roche Ltd (Switzerland)
- 4D Molecular Therapeutics (US)
- Sirion Biotech GmbH (Germany)
- Voyager Therapeutics (US)
- Thermo Fisher Scientific Inc. (US)

- Gene Therapy Catapult (UK)
- UniQure (Netherlands)
- MassBiologics (US)
- Renova Therapeutics (US)
- Shenzhen SiBionoGeneTech Co. Ltd (China)

Viral Vectors and Plasmid DNA Manufacturing Industry Developments

- **February 2021:** Wacker announced the acquisition of Genopis Inc., a significant plasmid DNA producer in the United States.
- **June 2020:** Aldevron and Ziopharm Oncology have joined forces to generate plasmid DNA for the T-cell treatment of solid malignancies.

Viral Vectors and Plasmid DNA Manufacturing Market Segmentation

Viral Vectors and Plasmid DNA Manufacturing Vector Type Outlook (USD Billion, 2019-2030)

- Plasmid DNA
- Viral Vector
- Non-viral Vector

Viral Vectors and Plasmid DNA Manufacturing Disease Type Outlook (USD Billion, 2019-2030)

- Cancer
- Genetic Disorder
- Infectious Disease

Viral Vectors and Plasmid DNA Manufacturing Application Outlook (USD Billion, 2019-2030)

- Antisense & RNAi Therapy
- Gene Therapy
- Cell Therapy
- Vaccinology
- Research

Viral Vectors and Plasmid DNA Manufacturing Workflow Outlook (USD Billion, 2019-2030)

- Upstream Processing
- Downstream Processing

Viral Vectors and Plasmid DNA Manufacturing End-User Outlook (USD Billion, 2019-2030)

- Pharmaceutical and Biopharmaceutical Companies
- Research Institutes

Viral Vectors and Plasmid DNA Manufacturing Regional Outlook (USD Billion, 2019-2030)

- North America

- US
- Canada
- Europe
 - Germany
 - France
 - UK
 - Italy
 - Spain
 - Rest of Europe
- Asia-Pacific
 - China
 - Japan
 - India
 - Australia
 - South Korea
 - Australia
 - Rest of Asia-Pacific
- Rest of the World
 - Middle East
 - Africa
 - Latin America

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