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Global Oncolytic Viral Therapy Market - 2025 -2033

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Abstracts

Oncolytic Viral Therapy Market Size

Oncolytic Viral Therapy Market Size reached US$ 24.48 Million in 2024 and is expected to reach US$ 164.51 Million by 2033, growing at a CAGR of 23.8% during the forecast period 2025-2033.

Oncolytic Viral Therapy Market Overview

The oncolytic viral therapy market is poised for strong growth over the next decade, driven by technological innovations, expanding clinical pipelines, and favorable regulatory environments, with North America and Asia Pacific emerging as the key regions to watch. Continuous collaboration between biotech innovators, academic institutions, and regulatory bodies, coupled with strategic partnerships between oncolytic developers and immuno-oncology leaders, will be critical to unlocking the full potential of oncolytic viruses as a cornerstone of next-generation cancer treatment.

Oncolytic Viral Therapy Market Dynamics: Drivers & Restraints

The rising prevalence of cancer and unmet treatment needs is significantly driving the oncolytic viral therapy market growth

According to the World Health Organization (WHO), cancer cases are projected to rise significantly, with over 35 million new cancer cases predicted in 2050, a 77% increase from the estimated 20 million cases in 2022. This steady increase results in a larger patient population needing diverse treatment options. For cancers such as melanoma, glioblastoma, and pancreatic cancer, where conventional therapies often fail to provide satisfactory outcomes, there is a high demand for new approaches. Oncolytic viral therapy, with its dual mechanism of selectively infecting cancer cells and stimulating

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immune responses, addresses the limitations of traditional treatments by offering a targeted approach that spares healthy tissue.

Oncolytic viral therapy addresses this gap by selectively infecting and lysing cancer cells while sparing normal tissue and by stimulating systemic anti-tumor immunity. For instance, Amgen's HSV-1-derived T-VEC (Imlygic) showed durable complete responses in around 16 % of patients with advanced melanoma, many of whom had exhausted other options, and its favorable safety profile compared to cytotoxic regimens has encouraged rapid adoption in major cancer centers. Similarly, vaccinia-based GL-ONC1 is in late-stage trials for ovarian and head-and-neck cancers, reflecting the need to treat tumors that are often refractory to chemotherapy and radiation.

High costs associated with oncolytic viral therapy are hampering the growth of the oncolytic viral therapy market

Oncolytic viruses require specialized facilities, advanced technology, and stringent regulatory compliance, all of which add to production costs. Manufacturing and ensuring the stability of viral therapies are complex and costly processes, making oncolytic viral therapy more expensive than conventional cancer treatments.

For instance, Amgen anticipates the average cost of IMLYGIC therapy to be approximately $65,000, which is costly due to its manufacturing process, involving genetic engineering and purification to ensure safety. These high costs limit its accessibility, especially in regions with limited healthcare funding or infrastructure.

Oncolytic Viral Therapy Market Segment Analysis

The global oncolytic viral therapy market is segmented based on virus type, application, mode of administration, end-user, and region.

The herpes simplex virus segment from the virus type is expected to hold 21.04% of the market share in 2024 in the oncolytic viral therapy market

In 2015, Amgen's HSV-1-based therapy, Talimogene laherparepvec (T-VEC, branded Imlygic), became the first oncolytic virus approved by the FDA (and later by the EMA) for unresectable melanoma. Its success demonstrated both safety and a meaningful survival benefit, which immediately positioned HSV as the "gold standard" backbone for subsequent oncolytic programs. Since its approval, Imlygic has been adopted in major cancer centers worldwide. Its established prescribing guidelines, reimbursement

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pathways, and real?world data have cemented HSV's reputation and encouraged payers to cover similar HSV-based constructs.

The herpes simplex virus has a large genome that can be easily engineered to include therapeutic genes or immune-stimulating factors. This flexibility allows researchers to tailor HSV to different cancers and enhance its tumor-targeting abilities. For instance, in T-VEC, HSV was genetically modified to delete genes that would make it harmful to normal cells, while adding genes to boost the immune response within tumors. This selective targeting made it effective in treating cancer cells with reduced adverse effects, a feature that increases its attractiveness in the market.

Oncolytic Viral Therapy Market Geographical Analysis

North America is expected to dominate the global oncolytic viral therapy market with a 44.12% share in 2024

The U.S. Food and Drug Administration approved Amgen's HSV-1-based oncolytic virus (T-VEC) for unresectable melanoma in 2015, making it the first oncolytic agent anywhere to reach the clinic. That milestone not only validated the entire modality but also established U.S. treatment protocols, reimbursement pathways, and physician familiarity much earlier than in other regions.

Similarly, the rising incidence of various cancers in North America, especially in the United States boosting the growth of the oncolytic viral therapy market in the region. The graph below represents the incidence of cancer cases in the region:

Many pioneering oncolytic players Amgen, Replimune, Oncorus, Genelux, and Sorrento/Viralytics, are based in the U.S. This geographic clustering fosters frequent academic partnerships, venture funding, and co-development deals (e.g., Replimune's collaboration with Roche on RP1 + pembrolizumab). Moreover, major pharma acquisitions or licensing transactions tend to center on North American assets, reinforcing the region's strategic importance.

Asia-Pacific is growing at the fastest pace in the oncolytic viral therapy market, holding 22.07% of the market share

The Asia-Pacific region faces a rapidly increasing cancer incidence, driven in part by its large and aging population. As cancer prevalence rises, the demand for innovative therapies, particularly for advanced or refractory tumors, has surged, making oncolytic

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virotherapy an attractive area for both public health agencies and private-sector stakeholders. The graph below shows the incidence of cancer in the Asia Pacific region:

Governments in China and India have launched targeted programs to bolster advanced cancer care capabilities. For instance, India’s National Programme for Prevention and Control of Non-Communicable Diseases (NP-NCD) strengthened tertiary care cancer facilities in late 2023, creating a more conducive environment for clinical research and eventual commercialization of novel treatments, including oncolytic viruses. In China, the State-level emphasis on biotech innovation and faster review pathways has encouraged local firms to invest in indigenous oncolytic platforms.

Oncolytic Viral Therapy Market Top Companies

Top companies in the oncolytic viral therapy market include Amgen, Inc., Daiichi Sankyo Co., Ltd., Lokon Pharma AB, Virogin Biotech Canada Ltd, KaliVir Immunotherapeutics, Inc., Transgene SA, Vyriad, Inc., Coastar Theapeutics Inc., IconOVir Bio, Inc., and Calidi Biotherapeutics, Inc., among others.

The global oncolytic viral therapy market report delivers a detailed analysis with 70+ key tables, more than 75+ visually impactful figures, and 178 pages of expert insights, providing a complete view of the market landscape.

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