

# The Oncolytic Virus Landscape 2017: an Analysis of Pipeline, Stakeholders, Deals, Industry Trends & Opportunities

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## Abstracts

The Oncolytic Virus Landscape 2017: an analysis of pipeline, stakeholders, deals, industry trends & opportunities

The field of oncolytic viruses was quite dormant in the first decade of the 2000s, characterized by slow clinical progress due to hypercautiousness and low, albeit steady, investments. The takeover of BioVex by Amgen in late 2011, worth up to US\$ 1 bln, has woken up the field and became a game changer together with the 2015 approval of the first oncolytic virus Imlygic developed by BioVex in regulated markets. In addition, it was increasingly recognized that oncolytic viruses not only were able to directly lyse cancer cells, but they also „freed“ tumor specific neoantigens, indirectly acting as a cancer vaccine.

However, the efficacy of oncolytic viruses still was modest, but can be improved when combined with immune checkpoint inhibitors. This led to an increased partnering interest of the major immuno-oncology (I-O) players, but also of investors who view oncolytic viruses as a must be for I-O combination regimens. As a consequence, total venture equity and private investments into oncolytic virus companies in 2016 was nearly 17-fold higher than in the year 2010.

Optimization of oncolytic viruses is ongoing and new constructs intend to solve some of the open problems regarding the way of administration (intratumoral vs systemic), higher cancer cell specific replication capacity, and longer persistence in vivo. Based on experience with several virus families over the last decades, a few virus families crystallized as well suitable backbones to carry more and more transgenes to express proteins or even single chain antibodies. This would position oncolytic viruses as

independent therapeutics and could compete with immuno-oncology compounds and cancer vaccines.

This report „The Oncolytic Virus Landscape 2017: an analysis of pipeline, stakeholders, deals, industry trends & opportunities“ as of January 2017 brings you up-to-date regarding key players, key technologies, Oncolytic Virus projects, business deals and private and public financing rounds. The report analyzes the Oncolytic Virus pipeline and stakeholders in the field, especially among Big Pharma/Biotech and technology companies. The report highlights the value of oncolytic viruses in terms of partnering terms and conditions, venture and private financing and (initial) public offerings.

This report has been built in a bottom-up way by desktop search to identify and describe company, product, technology and business/financing profiles which then were evaluated and analyzed with a final outlook describing perspectives with challenges and opportunities.

### **What will you find in the report?**

Selection of oncolytic virus strains

Design & construction of engineered oncolytic viruses

Herpes simplex virus (HSV) family

Adenovirus-based oncolytic viruses

Oncolytic Vaccinia Viruses, Vesicular Stomatitis Viruses, Newcastle Disease Viruses & Others

Profiles of 45 oncolytic viruses in development and on the market;

Analysis of the pipeline of oncolytic viruses

Comparison of clinical development paths

Combination trials of oncolytic viruses with immune checkpoint inhibitors

Combination with other anticancer therapeutics

Armed oncolytic viruses

Tumor indication of oncolytic viruses under study

Way of administration of oncolytic viruses in clinical studies

Profiles of 45 companies active in the field of oncolytic viruses

Pharma & Biotech vs four generations of oncolytic virus companies

Stakeholder analysis within each peer group

Sources of oncolytic virus technologies

Sources of non-dilutive financing including partnering deals

Analysis of venture and private equity financing rounds

Listing on stock exchange for access to capital

Mergers and acquisition in the field

Trends in the further research and development of oncolytic viruses

### **Who will benefit from the report?**

Venture capital, private equity and investment managers;

Financial analysts;

CFO;

Business development and licensing (BDL) specialists;

Marketing managers;

CEO, COO and managing directors;

Corporate strategy, product and portfolio analysts and managers;

Chief Technology Officer;

Cell technology and manufacturing specialists;

Clinical and preclinical development specialists.

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AstraZeneca (MedImmune)

Bayer

Benevir Biopharm

Boehringer Ingelheim

Bristol-Myers Squibb

Celgene

Cold Genesys

Daiichi Sankyo

DNatrix

Duke University start-up Company

GeneLux

Green Cross

Grifols

GSK (GlaxoSmithKline)

IGNITE Immunotherapy

Jiangsu Hengrui

Latima

Lee's Pharma

Lokon Pharma

Medigen Biotechnology

Merck

Multivir

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Pfizer  
Profectus Biosciences  
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Roche  
Shanghai Sunway Biotech  
SillaJen  
Sotio  
StemImmune  
StingInn  
Takara Bio  
Targovax  
TheraBiologics  
Theravir  
TILT Biotherapeutics  
Transgene  
Turnstone Biologics  
Unleash Immuno Oncolytics  
VCN Biosciences  
Viralytics  
ViraTherapeutics  
Virtu Biologics (TNK Therapeutics)  
Vyriad  
Wellstat Biologics  
Western Oncolytics

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