Table S1. References for timeline.

Year	Event	Citation
1910	Discovery of RSV by Peyton Rous	(Rous, 1910)
1925	Experimental infection with HSV	(Goodpasture, 1925)
1953	Discovery of HAdV by Wallace Rowe	(Rowe et al., 1953)
1970	Demonstration of RSV genome integration in mammalian cells by Howard Temin	(Temin and Mizutani, 1970)
1972	First artificial bacterial transformation by Stanley Cohen	(Cohen et al., 1972)
1983	Retrovirus gene transfer into mouse hematopoietic cells	(Joyner et al., 1983)
1984	Association between HIV infection and AIDS	(Broder and Gallo, 1984)[a]
1990	Gene transfer into human lymphocytes using retroviral vector by Steven Rosenberg	(Rosenberg et al., 1990)
1995	Treatment for cystic fibrosis using adenovirus vectors containing the human CFTR cDNA	(Korst et al., 1995)
1995	T lymphocyte-directed gene therapy for ADA-SCID using retroviral vectors	(Blaese et al., 1995)

1996	Trial for cystic fibrosis using recombinant AAV.	(Flotte et al., 1996)
2001	Phase 1 clinical trial for HIV infection using HIV-based lentiviral vector.	(MacGregor, 2001)
2003	Clinical trial for chronic pain using HSV-based vectors	(Glorioso et al., 2003)
2004	Approval of Gendicine (Ad-p53) for the treatment of head and neck cancers in China	(Pearson et al., 2004)
2005	Approval of Oncorine, an oncolytic adenoviral vector, for treatment of NPC in China	(Liang, 2018)
2016	Approval from the US FDA of T-VEC, the first HSV-based oncolytic virotherapy for melanoma treatment	(Greig, 2016)
2017	Approval from the FDA of two CAR T immunotherapies, involving lentiviral and retroviral vectors, for hematologic malignancies	(Ledford, 2017)
2017	Approval from the EMA of Strimvelis, an HSC gene therapy using a retroviral vector, for ADA-SCID treatment	(Aiuti et al., 2017)
2018	Approval from the US FDA of Luxturna, a recombinant AAV, for retinal dystrophy treatment	(Ameri, 2018)
2019	Approval from the FDA of the AAV vector-based Zolgensma, the first gene therapy for SMA treatment	(Hoy, 2019)
2020	Approval from the EMA of Zynteglo, a lentiviral vector for treatment of transfusion-dependent β-thalassemia	(Schuessler-Lenz et al., 2020)
2020	Publication of Resolution No. 338/2020 by ANVISA approving the registration and marketing of advanced therapy products in Brazil (https://www.in.gov.br/en/web/dou/-/resolucao-da-diretoria-colegiada-rdc-n-338-de-20-de-fevereiro-de-2020-244803291)	
2022	Approval from ANVISA of Kymriah, a CD19-specific CAR T cell therapy for the treatment of DLBCL and B-cell ALL (https://www.gov.br/anvisa/pt-br/assuntos/noticias-anvisa/2022/anvisa-aprova-produto-de-terapia-avancada-para-tratamento-de-cancer)	

a, At the time, the HIV virus was known as HTLV-III.

RSV, Rous Sarcoma Virus; HSV, Herpes Simplex Virus; HAdV, Human adenovirus; HIV, Human Immunodeficiency Virus; AIDS, Acquired Immunodeficiency Syndrome; ADA-SCID, Adenosine Deaminase Severe Combined Immunodeficiency; CFTR, Cystic Fibrosis Transmembrane Conductance Regulator; AAV, Adeno-Associated Virus; NPC, nasopharyngeal carcinoma; US FDA, The United States Food and Drug Administration; EMA, European Medicines Agency; CAR, Chimeric Antigen Receptor; SMA, Spinal Muscular Atrophy; ANVISA, Agência Nacional de Vigilância Sanitária (National Agency for Sanitary Vigilance, the federal body in Brazil that regulates new drugs, among other health related items); DLBCL, Diffuse Large B-Cell Lymphoma; ALL, Acute Lymphoblastic Leukemia.

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