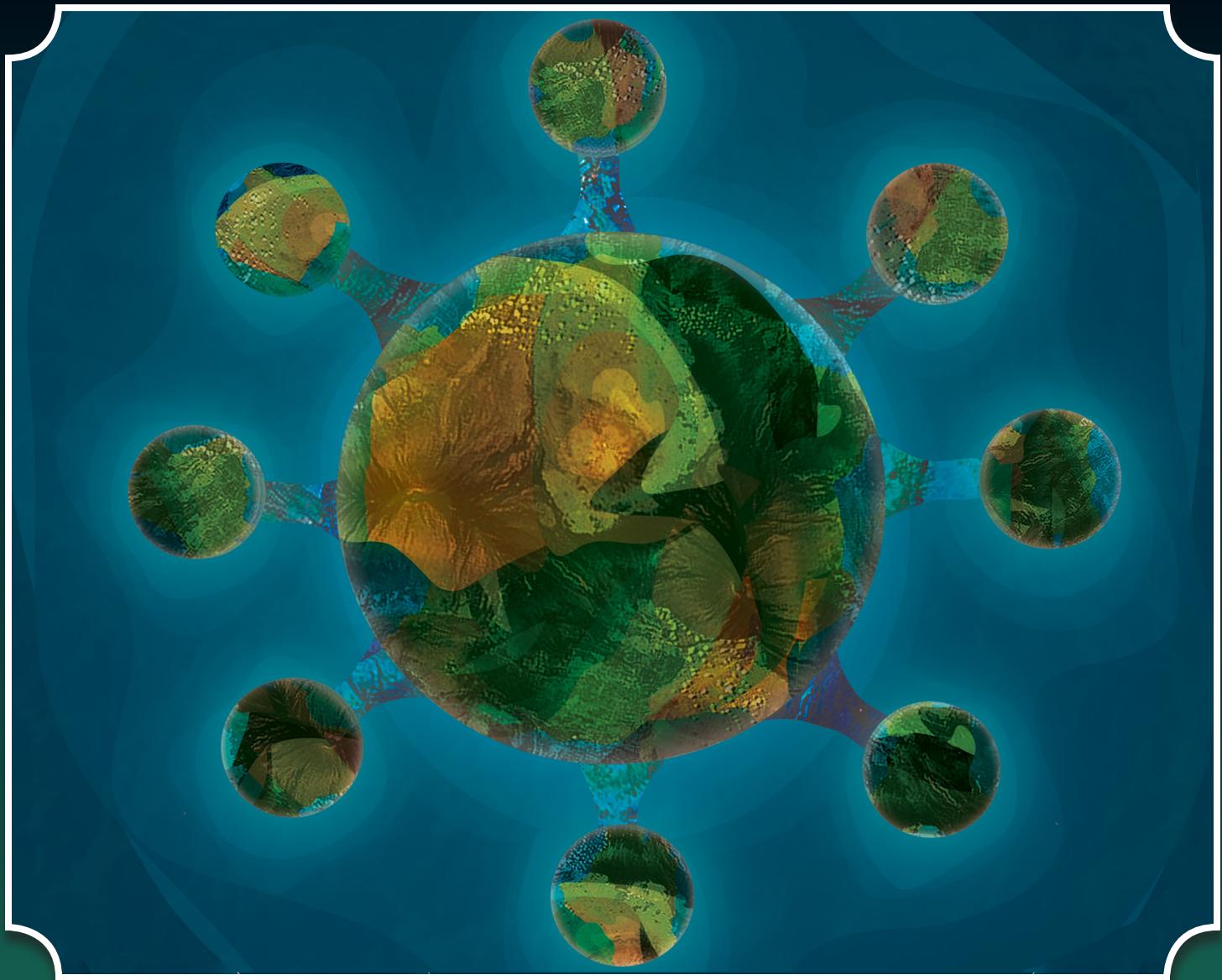




VIRUS-BASED TOOLS

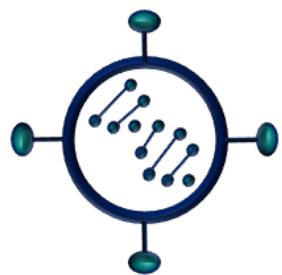
FOR DRUG DISCOVERY

Lentivirus | Vesicular Stomatitis Virus | Adeno-Associated Virus

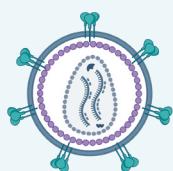


Optimized Viral Options

Virus-based tools such as Lentivirus, Adeno-Associated Virus (AAV), and Vesicular Stomatitis Virus (VSV) are critical for cell engineering and the study of viral infection. We have designed a suite of ready-to-use viral reagents to address a wide span of research areas including virology (particularly Coronaviruses), immunotherapy, CAR-T therapy, CRISPR, cell signaling, and more.

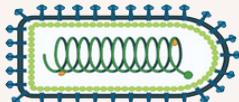


Lentivirus



Ideal for pseudotyping or engineering stable cell lines, lentiviruses deliver relatively large genes that can integrate into the host genome.

VSV



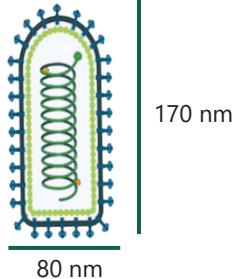
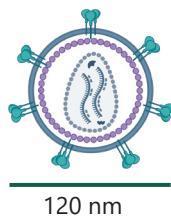
VSV is an excellent tool to model viral infection using pseudotyped viruses that replace the VSV-G protein with a desired viral protein of interest. Some cell infectivity models work best with VSV.

AAV



AAV is an ideal viral vector for delivery into primary cells both in vitro and in vivo. Its low immunogenicity and pathogenicity enable safe gene therapy.

Comparison of Viral Products



	HIV-based lentivirus	VSV Delta G	AAV
Genome size	9.7 kb	11 kb	4.7 kb
Suggested max insert size	10 kb	4.5 kb	2.5 kb
Genome type	ssRNA	ssRNA	ssDNA
Pseudotyping	Yes	Yes	No
Integration	Yes – stable (retrovirus)	No	No
Transduce exogenous gene of interest	Yes -stable	Yes - transient	Yes >6 months
Time to peak expression	72 hours	24-48 hours	7 days (2 weeks <i>in vivo</i>)
Biosafety level	2	2	1
<i>In vivo</i> use (animals)	Low efficiency	-	Most suitable
Immune response	Yes, medium	-	Ultra-low
Preferred applications	Gene transfer (<i>in vitro</i> , stable)	Model viral infection	Gene transfer (<i>in vitro</i> and <i>in vivo</i>)



Our Advantages



Produced In-House

- Made in the USA at our San Diego, CA laboratory
- Customized, personal support directly from our scientists



Committed to Excellence

- ISO 9001:2015-certified Quality Management System
- Lot-specific quality control testing



Expansive Portfolio

- Choose from over 140 ready-to-use lentivirus, AAV, and VSV vectors to study CAR-T, cell signaling pathways, coronavirus, CRISPR, and immunotherapy
- Long-term stable expression of a transgene with low immunogenicity, low toxicity, and high transduction efficiencies



Custom Services

- Design a custom virus with reporters and selection markers of your choice
- Utilize our cell line development services to generate overexpression and reporter cell lines
- Generate knock-out/knock-in cell lines or integrating/non-integrating viruses

Online Resources



Lentivirus Tools Webinar

<https://bpsbioscience.com/videos?topic=lentiviruses>



Lentivirus FAQs

<https://bpsbioscience.com/lentivirus-faq>



Lentiviruses for SARS-CoV-2 Research Tech Note

<https://bpsbioscience.com/pseudoviruses-sars-cov-2-research>



SARS-CoV-2 Pseudoviruses eBook

<https://bpsbioscience.com/ebooks?category=coronavirus>



Lentivirus Products

Lentiviruses are enveloped retroviruses that fuse with the target cell membrane, delivering genetic material into the cytoplasm of the cell. Our replication-incompetent lentiviruses have been VSV-G pseudotyped, making these virus particles safe, stable and especially useful to target a wide range of cell types. For infectivity assays, we have developed lentiviral products pseudotyped with SARS-CoV-2 spike proteins, specific to variant mutations. Our suite of over 120 lentivirus products enables studies across a wide range of research areas.

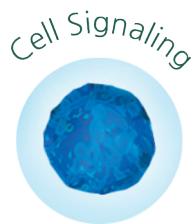
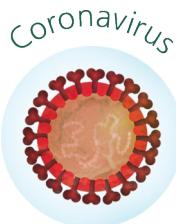
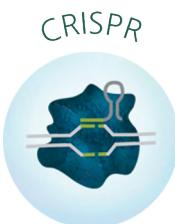
Applications

- Stable cell line generation
- Protein expression
- CRISPR/Cas9 knockout
- Generating cellular reporter assays (GFP, luciferase)
- Screen for neutralizing antibodies

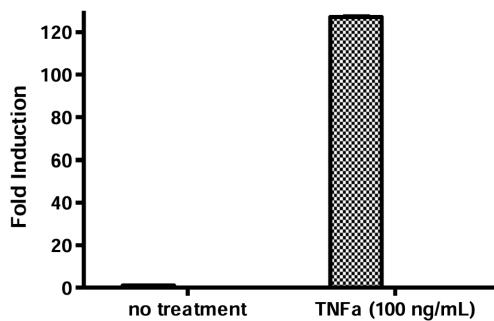
Advantages

- Can infect actively dividing and non-dividing cells
- Can infect a wide range of cell stages
- Size of inserted DNA can be up to 10 kb
- Long term stable expression of a transgene
- Low cellular toxicity
- High transduction efficiency

Research Areas

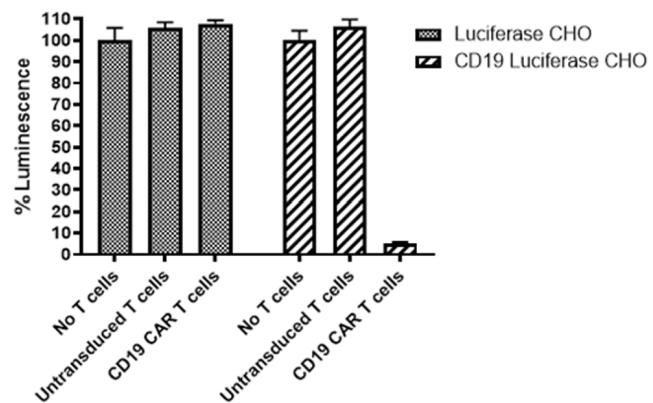


TNF α response of HEK293 cells transduced with NF- κ B luciferase reporter lentivirus (#79564)



HEK293 cells transduced with NF- κ B luciferase reporter lentivirus demonstrate induction of luciferase activity upon activation with TNF α . Fold induction was determined by comparing values against the control cells without TNF α treatment.

Activity of CD4/CD8 T cells transduced with anti-CD19 CAR Lentivirus (#78600)



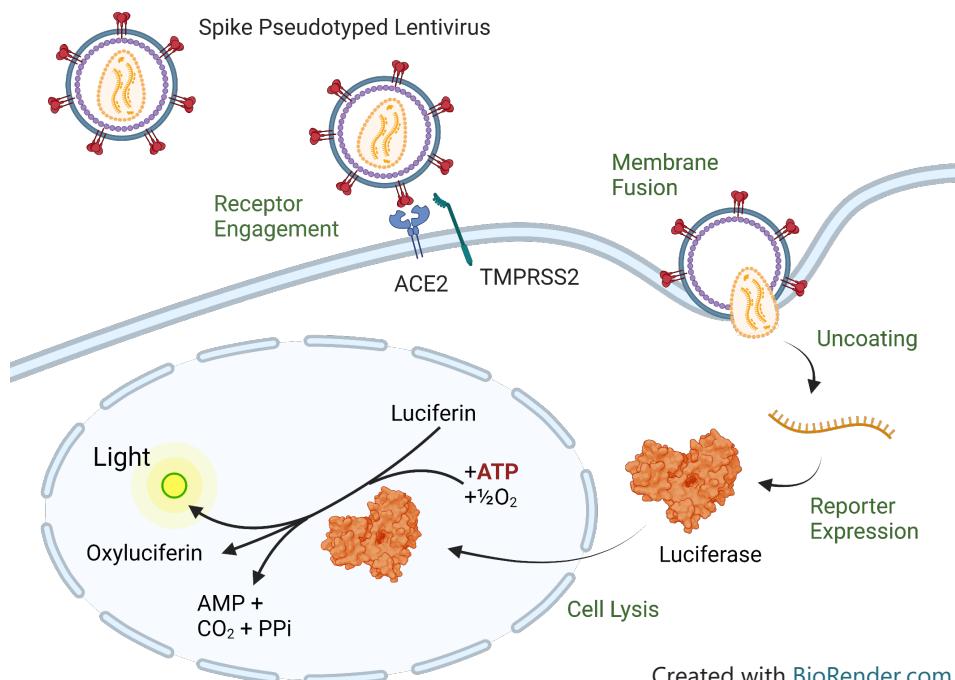
Anti-CD19 CAR Lentivirus-transduced T cells demonstrate specific killing of CD19/Luciferase CHO cells.



Pseudoviruses for Modeling Infection

Principle of the Assay

Lentivirus and VSV vectors can be pseudotyped, which involves replacing the native envelope protein with another viral protein of interest. For example, variant-specific SARS-CoV-2 Spike protein can be expressed on lentivirus or VSV delta G particles for infection of ACE2-expressing cells. The delivered genomes are engineered to express reporter genes such as luciferase or eGFP, enabling sensitive, quantitative readouts of infection. These systems serve as excellent models to screen for blocking antibodies or small molecule inhibitors of infection.



Created with BioRender.com

Options for Optimal Experimentation

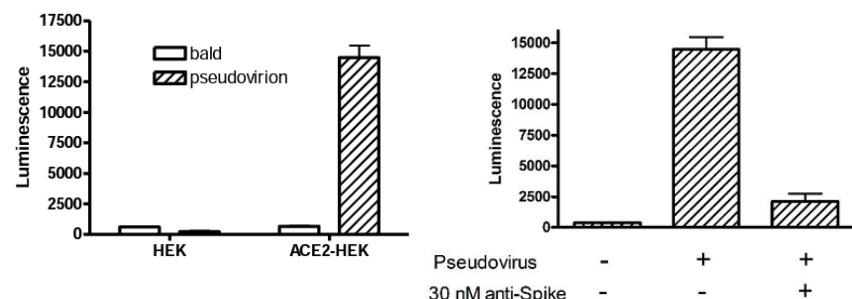
Virus Type	Reporters	Target Cell Types	Coronavirus Spike Variants
<ul style="list-style-type: none">LentivirusVSV delta G (preferred for Vero E6 infection)	<ul style="list-style-type: none">LuciferaseeGFPDual (Luc+eGFP)	<ul style="list-style-type: none">HeLa (ACE2)CHO (ACE2)HEK293 (ACE2)Vero E6 (TMPRSS2)	<ul style="list-style-type: none">SARS-CoV-2 emerging variants: BA.4/5, BA.2, BA.1Previous variants of interest: B.1.621, B.1.617.2, B.1.617.1, and many more.

Advantages

- High titer
- Simple protocols, suitable for high throughput assays
- Bald Lentivirus and VSV delta G controls
- Lentiviruses to express receptors: ACE2, TMPRSS2
- Quickly customizable to address emerging variant mutations or new viruses

Example Data

Spike (SARS-CoV-2) Pseudotyped Lentivirus (Luc-eGFP Dual Reporter) (#79982) transduction of ACE2-HEK293 cells monitored by luciferase activity



AAV Gene Delivery and Reporter Vectors

Adeno-Associated Virus (AAV) is a small dependoparvovirus which was initially discovered as a contaminant in adenovirus preparations. AAVs are non-enveloped and consist of an icosahedral capsid containing a short, single-stranded DNA genome flanked by two Inverted Terminal Repeat sequences (ITRs).



Recombinant AAV used in gene therapy has been engineered to be integration-deficient and to deliver a gene of interest (up to ≤ 5 kb in length) in place of the viral genome. Inside the cell, the recombinant AAV vector exists as an episome and can result in sustained expression of the gene of interest for up to 6 months in non-dividing cells. Due to its low immunogenicity and lack of insertional mutagenesis, AAVs are safe for clinical use and are the vector of choice for many gene therapies currently in development.

AAV Serotypes

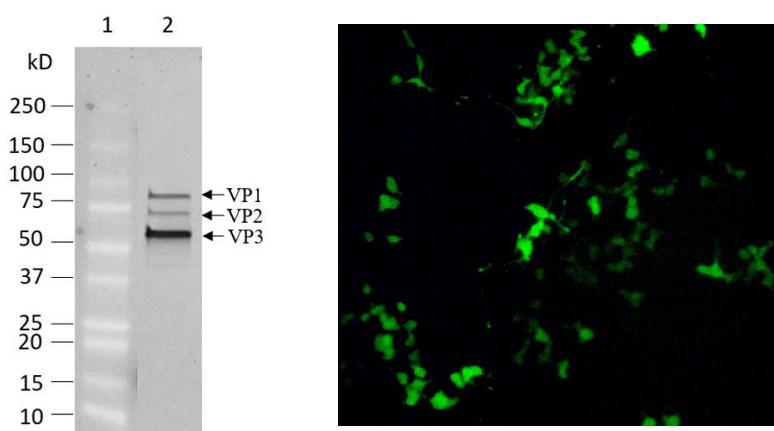
To date, 11 AAV serotypes have been characterized, each of these showing preferential binding for specific cell types and tissues. Thus, scientists can utilize this tropism to efficiently target specific cell types. In addition, several genetically engineered AAV serotypes have been developed to further increase tissue tropism and transduction efficiency for gene therapy purposes.

AAV1	CNS, Heart, Skeletal Muscle
AAV2	CNS, Kidney
AAV3	Liver
AAV4	CNS, Lung
AAV5	CNS, Lung
AAV6	Lung, Skeletal Muscle
AAV7	Liver, Skeletal Muscle
AAV8	CNS, Heart, Liver, Pancreas, Skeletal Muscle
AAV9	CNS, Heart, Liver, Lung, Skeletal Muscle

AAV Reporter Particles

Reporter proteins, such as luciferase or fluorescent markers, are ideal to visualize and/or quantify protein expression following AAV transduction. Luciferase, eGFP, ZsGreen, and mCherry-containing AAVs can be used to optimize transduction and experimental conditions, track transgene expression over time, or be used as internal controls.

Example data for AAV1 ZsGreen particles (#78443)



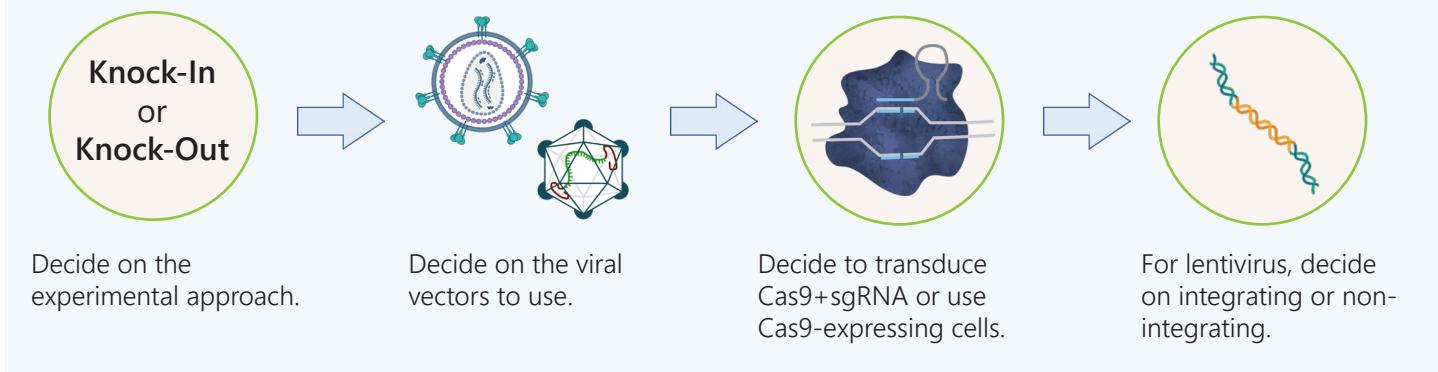
Left: Western blot of purified AAV1 ZsGreen particles display clear expression of AAV proteins: VP1, VP2, and VP3.

Right: Fluorescence microscopy of HEK293 cells 72 hours after transduction with AAV1 ZsGreen. ZsGreen expression was stable over time and still observed 30 days post transduction.

CRISPR/Cas9 Cell Engineering

Lentivirus and AAV vectors can be used for CRISPR/Cas9-based cell engineering. Our off-the-shelf CRISPR lentiviruses are replication incompetent, HIV-based, VSV-G pseudotyped lentiviral particles that can transduce almost all types of mammalian cells, including primary and non-dividing cells. AAV can also be used to transduce primary cells, including *in vivo*, with SaCas9, derived from *Staphylococcus aureus*, which has high cutting efficiency in mammalian cells.

The Logic Flow



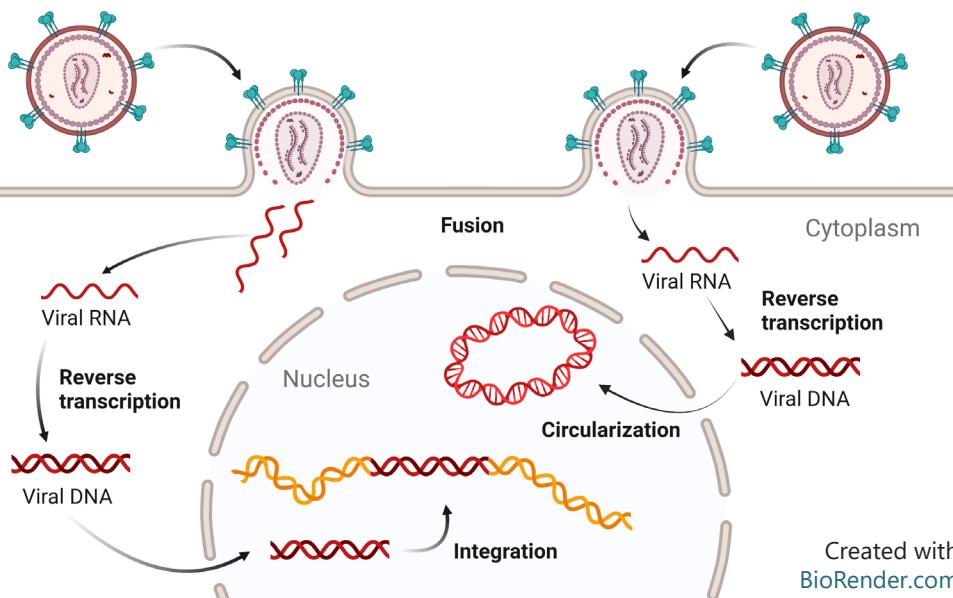
Integrating vs Non-Integrating Lentiviruses

Lentiviruses are typically constructed to include the wild-type integrase enzyme that will integrate the Cas9 and sgRNA genes into the host genome. Alternatively, a non-active mutant integrase can be used, resulting in a non-integrating virus. Each has benefits and limitations which are compared below.

Integrating

- Puromycin selection increases knock-out efficiency by ensuring high expression of Cas9 and the sgRNA
- Generates higher knock-out efficiencies in a cell pool
- Increased risk of off-target gene disruptions

Integrating Lentivirus



Non-integrating Lentivirus

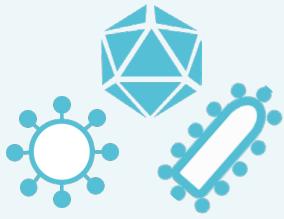
Non-Integrating

- Transient expression of Cas9 and sgRNA*
- Prolonged puromycin selection not required
- Eliminates risk of off-target effects
- Overall percentage of knockouts may be lower, so limiting dilution is required

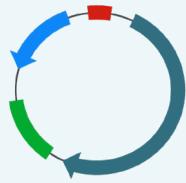
*Note that although non-integrating lentiviruses only transiently express Cas9 and sgRNA, they can still be used to generate stable cell lines because the changes in the genomic DNA from the Cas9 nuclease activity and NHEJ repair are permanent.

Created with
BioRender.com

Custom Virus Services



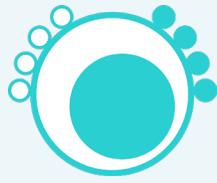
We can develop custom viruses for your research needs.



We can engineer your virus and cell lines with reporters, selection markers, variants, and specific mutations.



We can generate custom stable overexpression, knockout, or reporter cell lines using your virus.



Choose integrating or non-integrating lentiviruses for cellular protein knock-out or knock-in.

Our Milestone-Measured Process for Virus-Based Cell Engineering



1 Molecular Biology

Viral vectors are generated using available clones, or through the use of synthetic DNA.



2 Virus Production

The custom virus is manufactured for development of the stable cell line.



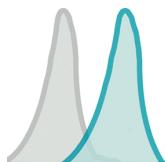
3 Selection and Pool Generation

Parental cells are transduced with virus. The cell pool is selected for using antibiotics.



4 Limiting Dilution and Clonal Selection

Based on the results of the initial pool testing, the cell pool is diluted and single cell-derived clones are selected.



5 Confirmation of Expression

The expression level of the target protein is analyzed via Western blot or flow cytometry.



6 Functional Validation

Cells are treated with a reference control compound to obtain dose-response titration data.



7 Stability Testing

The desired number of clones are selected for passage stability testing. Mycoplasma testing and cell banking services are also available.

Why choose BPS Bioscience for your custom projects?

- We have extensive expertise and experience in developing and manufacturing custom and off-the-shelf viral products.
- We have helped accelerate projects across large pharma, vaccine developers, biotech and basic research institutions.
- Our high quality custom products have returned excellent customer satisfaction scores.

Give us a try today.



bpsbioscience.com/virus-based-tools

AAVs	Catalog #	AAVs	Catalog #
AAV ONE-Extract™ Solution	78585	AAV3 SaCas9	78481
AAV-6 Anti-CD19 CAR (CD19 ScFv-CD8-4-1BB-CD3ζ)	82093	AAV3 ZsGreen	78445
AAV-DJ Anti-CD19 CAR (CD19 ScFv-CD8-4-1BB-CD3ζ)	82092	AAV4 ZsGreen	78446
AAV-DJ CD68-Luciferase	82136	AAV5 Luciferase	78456
AAV-DJ Luciferase	78451	AAV5 Luciferase-eGFP	78465
AAV-DJ Luciferase-eGFP	78460	AAV5 Luciferase-mCherry	78474
AAV-DJ Luciferase-mCherry	78469	AAV5 SaCas9	78483
AAV-DJ MBP eGFP	82112	AAV5 ZsGreen	78447
AAV-DJ SaCas9	78478	AAV6 Luciferase	78457
AAV-DJ Scrambled shRNA Control	78871	AAV6 Luciferase-eGFP	78466
AAV-DJ SP-B-Luciferase	82135	AAV6 Luciferase-mCherry	78475
AAV-DJ SYN1-Luciferase	82134	AAV6 SaCas9	78484
AAV-DJ TERT-Luciferase	82137	AAV6 ZsGreen	78448
AAV-DJ ZsGreen	78442	AAV8 Luciferase	78458
AAV-DJ-CMV-mCherry	82253	AAV8 Luciferase-eGFP	78467
AAV1 Luciferase	78452	AAV8 Luciferase-mCherry	78476
AAV1 Luciferase-eGFP	78461	AAV8 SaCas9	78485
AAV1 Luciferase-mCherry	78470	AAV8 ZsGreen	78449
AAV1 SaCas9	78479	AAV9 Luciferase	78459
AAV1 ZsGreen	78443	AAV9 Luciferase-eGFP	78468
AAV2 Luciferase	78453	AAV9 Luciferase-mCherry	78477
AAV2 Luciferase-eGFP	78462	AAV9 SaCas9	78486
AAV2 Luciferase-mCherry	78471	AAV9 ZsGreen	78450
AAV2 SaCas9	78480		
AAV2 ZsGreen	78444	Lentiviruses	Catalog #
AAV3 Luciferase	78454	ACE2 Lentivirus	79944
AAV3 Luciferase-eGFP	78463	Anti-BCMA CAR Lentivirus (Clone C11D5.3 ScFv-CD8-4-1BB-CD3ζ)	78655
AAV3 Luciferase-mCherry	78472	Anti-BCMA CAR Lentivirus (VHH1/VHH2 ScFv-CD8-4-1BB-CD3ζ)	78783

Lentiviruses	Catalog #	Lentiviruses	Catalog #
Anti-CD19 CAR Lentivirus (CD19 ScFv-CD8-4-1BB-CD3ζ)	78600	CD20 Lentivirus	78658
Anti-CD19 CAR Lentivirus (CD19 ScFv-CD8-4-1BB-CD3ζ, eGFP)	78775	CD22 Lentivirus	78659
Anti-CD19 CAR Lentivirus (CD19 ScFv-CD8-4-1BB-CD3ζ, PuroR)	78602	CD40 Ligand (CD40L) Lentivirus	78931
Anti-CD19 CAR Lentivirus (CD19 ScFv-CD8-4-1BB-CD3ζ; SIN Vector)	78601	CD47 CRISPR/Cas9 Lentivirus (Integrating)	78056
Anti-CD19/CD22 Bispecific CAR Lentivirus (Clones FMC63/m971 ScFv-CD8-4-1BB-CD3ζ)	78609	CD47 CRISPR/Cas9 Lentivirus (Non-Integrating)	78063
Anti-CD20 CAR Lentivirus (Clone Leu-16 ScFv-CD8-4-1BB-CD3ζ)	78606	CD5 (Human) CRISPR/Cas9 Lentivirus (Integrating)	78119
Anti-CD22 CAR Lentivirus (Clone m971 ScFv-CD8-4-1BB-CD3ζ)	78608	CD5 (Human) CRISPR/Cas9 Lentivirus (Non-Integrating)	78198
Anti-Mesothelin CAR Lentivirus (P4 ScFv-CD8-4-1BB-CD3ζ)	78703	CD8a Lentivirus	78648
AP1 eGFP Reporter Lentivirus (JNK Signaling Pathway)	78680	CD8a/CD8b Lentivirus	78650
AP1 Luciferase Reporter Lentivirus (JNK Signaling Pathway)	79823	CEACAM5 Lentivirus	78719
ARE Luciferase Reporter Lentivirus	79869	CEACAM6 Lentivirus	78720
ATF6 Luciferase Reporter Lentivirus (ATF6 Pathway)	78667	CIITA (Human) CRISPR/Cas9 Lentivirus (Integrating)	78435
B2M (Human) CRISPR/Cas9 Lentivirus (Integrating)	78340	CIITA (Human) CRISPR/Cas9 Lentivirus (Non-integrating)	78434
B2M (Human) CRISPR/Cas9 Lentivirus (Non-Integrating)	78341	Claudin-3 Lentivirus	78722
B7-H4 Lentivirus	78727	Claudin-4 Lentivirus	78723
Bald Lentiviral Pseudovirion (eGFP Reporter)	79987	Claudin-9 Lentivirus	78721
Bald Lentiviral Pseudovirion (Luc-eGFP Dual Reporter)	79988	CRBN CRISPR/Cas9 Lentivirus (Integrating)	78517
Bald Lentiviral Pseudovirion (Luciferase Reporter)	79943	CRBN CRISPR/Cas9 Lentivirus (Non-Integrating)	78518
BCMA CRISPR/Cas9 Lentivirus (Integrating)	78893	CRE/CREB eGFP Reporter Lentivirus	78153
BCMA CRISPR/Cas9 Lentivirus (Non-Integrating)	78894	CRE/CREB Luciferase Reporter Lentivirus	79580
BCMA Lentivirus	78714	CRISPR/Cas9 Kinase Knockout Lentivirus Library (Array Format)	78487
Cas9 Lentivirus (Hygromycin Selection)	78067	CSL (CBF1/RBP-Jk) Luciferase Reporter Lentivirus (Notch Signaling Pathway)	78746
Cas9 Lentivirus (Inducible Tet-On)	78794	CTLA4 CRISPR/Cas9 Lentivirus (Integrating)	78054
Cas9 Lentivirus (Neomycin Selection)	78432	CTLA4 CRISPR/Cas9 Lentivirus (Non-Integrating)	78061
Cas9 Lentivirus (Puromycin Selection)	78066	DLL3 Lentivirus	78909
CBL-B (Human) CRISPR/Cas9 Lentivirus (Integrating)	78343	Dominant Negative TGF-β Receptor Type II (TGF-βRII) Lentivirus	78928
CBL-B (Human) CRISPR/Cas9 Lentivirus (Non-Integrating)	78344	eGFP Lentivirus (Inducible TET On)	78629
CD19 Lentivirus	78657	EGR1 Promoter Luciferase Reporter Lentivirus	78664

Lentiviruses	Catalog #	Lentiviruses	Catalog #
Enhanced GFP Lentivirus (G418, Hygromycin and Puromycin)	78639	IL15/IL15Ra Lentivirus	78938
EpCAM Lentivirus	78718	ISRE Luciferase Reporter Lentivirus (JAK/STAT Signaling Pathway)	79824
Expression Negative Control Lentivirus (EF1A Promoter/Hygromycin, Puromycin, or G418)	82212	Kinase (Human) CRISPR/Cas9 Lentivirus (Integrating)	78488
Expression Negative Control Lentivirus (G418 or Hygromycin or Puromycin)	79902	LAG3 CRISPR/Cas9 Lentivirus (Integrating)	78053
FcER1G Lentivirus	79878	LAG3 CRISPR/Cas9 Lentivirus (Non-Integrating)	78060
FCGR2A CRISPR/Cas9 Lentivirus (Integrating)	78537	LAIR1 Lentivirus	78903
FCGR2A CRISPR/Cas9 Lentivirus (Non-Integrating)	78538	LYPD1 Lentivirus	78724
FcGRIIB (CD32B) Lentivirus	79877	MART-1-Specific TCR Lentivirus (Clone DMF4)	78678
FcGRIIIA (CD16a) Lentivirus	79876	MART-1-Specific TCR Lentivirus (Clone DMF5)	78679
FcRL5 Lentivirus	78715	mCherry Lentivirus (Hygromycin or Puromycin)	78932
FcRL5 Lentivirus (Macaca fascicularis/Cynomolgus)	78781	Myc Luciferase Reporter Lentivirus	78628
Firefly Luciferase Lentivirus (EF1A Promoter/Geneticin, Hygromycin, or Puromycin)	78740	Nectin-4 Lentivirus	78712
Firefly Luciferase Lentivirus (G418, Hygromycin and Puromycin)	79692	Negative Control eGFP Reporter Lentivirus	79927
Firefly Luciferase Lentivirus (UbC Promoter)	79880	Negative Control Luciferase Lentivirus	79578
Firefly Luciferase-eGFP Lentivirus (EF1A Promoter/Geneticin, Hygromycin, or Puromycin)	78741	NF-κB eGFP Reporter Lentivirus	79926
Firefly Luciferase-eGFP Lentivirus (G418) or (Puromycin)	79980	NF-κB Luciferase Reporter Lentivirus	79564
FOLR1 Lentivirus (Macaca fascicularis/Cynomolgus)	78778	NFAT eGFP Reporter Lentivirus	79922
GAL4 DBD-GR Lentivirus	78632	NFAT Luciferase Reporter Lentivirus	79579
GAS Luciferase Reporter Lentivirus (IFN-γ/JAK/STAT1 Pathway)	78653	NFAT Luciferase-eGFP Reporter Lentivirus	78656
GPC3 Lentivirus	78711	NFAT Luciferase-RFP Reporter Lentivirus	78617
GPRC5D Lentivirus	78716	NKp46 Lentivirus	78717
GPRC5D Lentivirus (Macaca fascicularis/Cynomolgus)	78780	NKp46 Lentivirus (Macaca fascicularis/Cynomolgus)	78779
HLA-C*08:02 Lentivirus	78930	NLRP3 CRISPR/Cas9 Lentivirus (Integrating)	78545
HLA-E Lentivirus	78929	NLRP3 CRISPR/Cas9 Lentivirus (Non-Integrating)	78546
HRE Luciferase Reporter Lentivirus	78668	NLRP3 Human shRNA Lentivirus	82122
HSE Luciferase Reporter Lentivirus (Heat Shock Response)	78669	Non-secreted Gaussia Luciferase Lentivirus (CMV Promoter)	79893-C
IL-2 Promoter Luciferase Reporter Lentivirus	79825	Notch1dE Lentivirus	78747
IL-8 Promoter Luciferase Reporter Lentivirus	79827	NY-ESO-1-Specific TCR Lentivirus (Clone 1G4)	78675

Lentiviruses	Catalog #	Lentiviruses	Catalog #
NY-ESO-1-Specific TCR Lentivirus (Clone c259)	78676	Spike (BA.1.1, Omicron Variant R346K) (SARS-CoV-2) Pseudotyped Lentivirus (eGFP Reporter)	78624
p53 Luciferase Reporter Lentivirus	78666	Spike (BA.1.1, Omicron Variant R346K) (SARS-CoV-2) Pseudotyped Lentivirus (Luc Reporter)	78623
PD-1 (Human) sgRNA-MS2 Lentivirus (Integrating)	78190	Spike (BA.2, Omicron Variant) (SARS-CoV-2) Pseudotyped Lentivirus (eGFP Reporter)	78626
PD-1 CRISPR/Cas9 Lentivirus (Integrating)	78052	Spike (BA.2, Omicron Variant) (SARS-CoV-2) Pseudotyped Lentivirus (Luc Reporter)	78625
PD-1 CRISPR/Cas9 Lentivirus (Non-Integrating)	78059	Spike (BA.2.12.1, Omicron Variant) (SARS-CoV-2) Pseudotyped Lentivirus (eGFP Reporter)	78646
PD-L1 CRISPR/Cas9 Lentivirus (Integrating)	78057	Spike (BA.2.12.1, Omicron Variant) (SARS-CoV-2) Pseudotyped Lentivirus (Luc Reporter)	78645
PD-L1 CRISPR/Cas9 Lentivirus (Non-Integrating)	78064	Spike (BA.4/5, Omicron Variant) (SARS-CoV-2) Pseudotyped Lentivirus (eGFP Reporter)	78652
PD-L1 Lentivirus	78925	Spike (BA.4/5, Omicron Variant) (SARS-CoV-2) Pseudotyped Lentivirus (Luc Reporter)	78651
PSMA Lentivirus	78726	Spike (BF.7, Omicron Variant) (SARS-CoV-2) Pseudotyped Lentivirus (eGFP Reporter)	78702
Renilla Luciferase Lentivirus (G418 or Puromycin)	79565	Spike (BF.7, Omicron Variant) (SARS-CoV-2) Pseudotyped Lentivirus (Luc Reporter)	78699
RFP Lentivirus	78347-P	Spike (BQ.1, Omicron Variant) (SARS-CoV-2) Pseudotyped Lentivirus (eGFP Reporter)	78700
SBE Luciferase Reporter Lentivirus (TGFβ/SMAD Pathway)	79806	Spike (BQ.1, Omicron Variant) (SARS-CoV-2) Pseudotyped Lentivirus (Luciferase Reporter)	78697
Secreted Gaussia Luciferase Lentivirus CMV Promoter or EF1A Promoter	79892	Spike (BQ.1.1, Omicron Variant) (SARS-CoV-2) Pseudotyped Lentivirus (eGFP Reporter)	78701
Spike (B.1.1.529 BA.1, Omicron Variant) (SARS-CoV-2) Pseudotyped Lentivirus (eGFP Reporter)	78349	Spike (BQ.1.1, Omicron Variant) (SARS-CoV-2) Pseudotyped Lentivirus (Luciferase Reporter)	78698
Spike (B.1.1.529 BA.1, Omicron Variant) (SARS-CoV-2) Pseudotyped Lentivirus (Luc Reporter)	78348	Spike (D614G) (SARS-CoV-2) Pseudotyped Lentivirus (eGFP Reporter)	78035
Spike (B.1.1.7, Alpha Variant) (SARS-CoV-2) Pseudotyped Lentivirus (eGFP Reporter)	78158	Spike (D614G) (SARS-CoV-2) Pseudotyped Lentivirus (Luc Reporter)	78028
Spike (B.1.1.7, Alpha Variant) (SARS-CoV-2) Pseudotyped Lentivirus (Luc Reporter)	78112	Spike (K417T, E484K, N501Y) (SARS-CoV-2) Pseudotyped Lentivirus (Luc Reporter)	78143
Spike (B.1.351, Beta Variant) (SARS-CoV-2) Pseudotyped Lentivirus (eGFP Reporter)	78160	Spike (P.1, Gamma Variant) (SARS-CoV-2) Pseudotyped Lentivirus (eGFP Reporter)	78159
Spike (B.1.351, Beta Variant) (SARS-CoV-2) Pseudotyped Lentivirus (Luc Reporter)	78142	Spike (P.1, Gamma Variant) (SARS-CoV-2) Pseudotyped Lentivirus (Luc Reporter)	78144
Spike (B.1.429, Epsilon Variant) Pseudotyped Lentivirus (Luc Reporter)	78172	Spike (SARS-CoV-1) Pseudotyped Lentivirus (eGFP Reporter)	78633
Spike (B.1.617 Variant) Pseudotyped Lentivirus (Luc Reporter)	78204	Spike (SARS-CoV-1) Pseudotyped Lentivirus (Luc Reporter)	78614
Spike (B.1.617.1, Kappa Variant) Pseudotyped Lentivirus (Luc Reporter)	78205	Spike (SARS-CoV-2) Lentivirus	78010
Spike (B.1.617.2.1; Delta Plus Variant) (SARS-CoV-2) Pseudotyped Lentivirus (eGFP Reporter)	78219	Spike (SARS-CoV-2) Pseudotyped Lentivirus (eGFP Reporter)	79981
Spike (B.1.617.2.1; Delta Plus Variant) Pseudotyped Lentivirus (Luc Reporter)	78218	Spike (SARS-CoV-2) Pseudotyped Lentivirus (Luciferase Reporter)	79942
Spike (B.1.617.2; Delta Variant) (SARS-CoV-2) Pseudotyped Lentivirus (eGFP Reporter)	78216	Spike (XBB.1.16, Omicron Variant) (SARS-CoV-2) Pseudotyped Lentivirus (eGFP Reporter)	78785
Spike (B.1.617.2; Delta Variant) Pseudotyped Lentivirus (Luc Reporter)	78215	Spike (XBB.1.16, Omicron Variant) (SARS-CoV-2) Pseudotyped Lentivirus (Luciferase Reporter)	78784
Spike (B.1.618 Variant) Pseudotyped Lentivirus (Luc Reporter)	78206	Spike (XBB.1.5, Omicron Variant) (SARS-CoV-2) Pseudotyped Lentivirus (eGFP Reporter)	78737
Spike (B.1.621, Mu Variant) (SARS-CoV-2) Pseudotyped Lentivirus (Luc Reporter)	78618	Spike (XBB.1.5, Omicron Variant) (SARS-CoV-2) Pseudotyped Lentivirus (Luciferase Reporter)	78736

Lentiviruses	Catalog #	VSVs	Catalog #
Spike Variants (SARS-CoV-2) Pseudotyped Lentivirus Pack (Luciferase Reporter)	78616	Bald VSV Delta G (Luciferase Reporter)	78636
Spike(SARS-CoV-2) Pseudotyped Lentivirus (Luc-eGFP Dual Reporter)	79982	Spike (B.1.617.2, Delta Variant) (SARS-CoV-2) Pseudotyped VSV Delta G (Luciferase Reporter)	78640
SRE Luciferase Reporter Lentivirus	78627	Spike (BA.1.1, Omicron Variant) (SARS-CoV-2) Pseudotyped VSV Delta G (Luciferase Reporter)	78641
STAT3 eGFP Reporter Lentivirus	78197	Spike (BA.2, Omicron Variant) (SARS-CoV-2) Pseudotyped VSV Delta G (Luciferase Reporter)	78635
STAT3 Luciferase Reporter Lentivirus	79744	Spike (BA.2.12.1, Omicron Variant) (SARS-CoV-2) Pseudotyped VSV Delta G (Luciferase Reporter)	78643
STAT5 Luciferase Reporter Lentivirus	79745	Spike (BA.4/5, Omicron Variant) (SARS-CoV-2) Pseudotyped VSV Delta G (Luciferase Reporter)	78644
STAT6 Luciferase Reporter Lentivirus (STAT6 Signaling Pathway)	78799	Spike (D614G) (SARS-CoV-2) Pseudotyped VSV Delta G (Luciferase Reporter)	78642
TCF/LEF Luciferase Reporter Lentivirus (Wnt/β-catenin Signaling Pathway)	79787	Spike (SARS-CoV-2) Pseudotyped VSV Delta G (Luciferase Reporter)	78637
TCR Activator Lentivirus (CMV Promoter/Puromycin) or (EF1A Promoter/Puromycin) or (EF1A Promoter/Hygromycin)	79894	VSV-G Pseudotyped VSV Delta G (Luciferase Reporter)	78634
TCR CRISPR/Cas9 Lentivirus (Integrating)	78055		
TCR CRISPR/Cas9 Lentivirus (Non-Integrating)	78062		
TEAD Luciferase Reporter Lentivirus	79833		
TGFBR2 CRISPR/Cas9 Lentivirus (Integrating)	78535		
TGFBR2 CRISPR/Cas9 Lentivirus (Non-Integrating)	78536		
TIGIT CRISPR/Cas9 Lentivirus (Integrating)	78058		
TIGIT CRISPR/Cas9 Lentivirus (Non-Integrating)	78065		
TMRSS2 Lentivirus	78011		
TNFR2 Lentivirus	78765		
Trop2 Lentivirus	78710		
Trop2 Lentivirus (Macaca fascicularis/Cynomolgus)	78776		
UAS Luciferase Reporter Lentivirus	78631		
ULBP2 Lentivirus	78744		
ULBP2 Lentivirus (Macaca fascicularis/Cynomolgus)	78777		
VSIG4 Lentivirus	78902		
XRE Luciferase Reporter Lentivirus (AhR Signaling)	78672		
YFP (Topaz) Lentivirus	79989		



FIND A TRUSTED PARTNER FOR YOUR NEXT PROJECT



Ordering Information
orders@bpsbioscience.com



Technical Support
support@bpsbioscience.com



US Sales Support
sales-team@bpsbioscience.com



International Sales Support
international@bpsbioscience.com

BPS Bioscience, Inc.
6405 Mira Mesa Blvd, Suite 100
San Diego, CA 92121
Tel: 858-202-1401

bpsbioscience.com

