



Expression Lentivirus for SV40 large T-antigen

CAT#	Product Name	Amounts
<u>LVP016-Neo</u>	SV40 Large T-antigen (CMV, Neo) lentivirus	200ul, (1 x 10 ⁷ IFU/mL) in DMEM medium, containing 10 x (60 ug/m) polybrene
<u>LVP016-Bsd</u>	SV40 Large T-antigen (CMV, Bsd) lentivirus	
<u>LVP016-Puro</u>	SV40 Large T-antigen (CMV, Puro) lentivirus	
<u>LVP016-Zeo</u>	SV40 Large T-antigen (CMV, Zeo) lentivirus	
<u>LVP016-Hygro</u>	SV40 Large T-antigen (CMV, Hygro) lentivirus	
<u>LVP016-GB</u>	SV40 Large T-antigen (CMV, GFP-Bsd) lentivirus	
<u>LVP016-GP</u>	SV40 Large T-antigen (CMV, GFP-Puro) lentivirus	
<u>LVP016-RB</u>	SV40 Large T-antigen (CMV, RFP-Bsd) lentivirus	
<u>LVP016-RP</u>	SV40 Large T-antigen (CMV, RFP-Puro) lentivirus	
<u>LVP016</u>	SV40 Large T-antigen (CMV, no selection) lentivirus	
<u>LVP557-Neo</u>	SV40 Large T-antigen (EF1a, Neo) lentivirus	
<u>LVP557-Bsd</u>	SV40 Large T-antigen (EF1a, Bsd) lentivirus	
<u>LVP557-Puro</u>	SV40 Large T-antigen (EF1a, Puro) lentivirus	
<u>LVP557-Zeo</u>	SV40 Large T-antigen (EF1a, Zeo) lentivirus	
<u>LVP557-Hygro</u>	SV40 Large T-antigen (EF1a, Hygro) lentivirus	
<u>LVP557-GB</u>	SV40 Large T-antigen (EF1a, GFP-Bsd) lentivirus	
<u>LVP557-GP</u>	SV40 Large T-antigen (EF1a, GFP-Puro) lentivirus	
<u>LVP557-RB</u>	SV40 Large T-antigen (EF1a, RFP-Bsd) lentivirus	
<u>LVP557-RP</u>	SV40 Large T-antigen (EF1a, RFP-Puro) lentivirus	



<u>LVP557</u>	SV40 Large T-antigen (EF1a, no selection) lentivirus	
<u>LVP016-Neo-PBS</u>	SV40 Large T-antigen (CMV, Neo) lentivirus in PBS	200ul, (5 x 10 ⁷ IFU/mL) in PBS solution
<u>LVP016-Bsd-PBS</u>	SV40 Large T-antigen (CMV, Bsd) lentivirus in PBS	
<u>LVP016-Puro-PBS</u>	SV40 Large T-antigen (CMV, Puro) lentivirus in PBS	
<u>LVP016-Zeo-PBS</u>	SV40 Large T-antigen (CMV, Zeo) lentivirus in PBS	
<u>LVP016-Hygro-PBS</u>	SV40 Large T-antigen (CMV, Hygro) lentivirus in PBS	
<u>LVP016-GB-PBS</u>	SV40 Large T-antigen (CMV, GFP-Bsd) lentivirus in PBS	
<u>LVP016-GP-PBS</u>	SV40 Large T-antigen (CMV, GFP-Puro) lentivirus in PBS	
<u>LVP016-RB-PBS</u>	SV40 Large T-antigen (CMV, RFP-Bsd) lentivirus in PBS	
<u>LVP016-RP-PBS</u>	SV40 Large T-antigen (CMV, RFP-Puro) lentivirus in PBS	
<u>LVP016-PBS</u>	SV40 Large T-antigen (CMV, no selection) lentivirus in PBS	
<u>LVP557-Neo-PBS</u>	SV40 Large T-antigen (EF1a, Neo) lentivirus in PBS	
<u>LVP557-Bsd-PBS</u>	SV40 Large T-antigen (EF1a, Bsd) lentivirus in PBS	
<u>LVP557-Puro-PBS</u>	SV40 Large T-antigen (EF1a, Puro) lentivirus in PBS	
<u>LVP557-Zeo-PBS</u>	SV40 Large T-antigen (EF1a, Zeo) lentivirus in PBS	
<u>LVP557-Hygro-PBS</u>	SV40 Large T-antigen (EF1a, Hygro) lentivirus in PBS	
<u>LVP557-GB-PBS</u>	SV40 Large T-antigen (EF1a, GFP-Bsd) lentivirus in PBS	
<u>LVP557-GP-PBS</u>	SV40 Large T-antigen (EF1a, GFP-Puro) lentivirus in PBS	
<u>LVP557-RB-PBS</u>	SV40 Large T-antigen (EF1a, RFP-Bsd) lentivirus in PBS	
<u>LVP557-RP-PBS</u>	SV40 Large T-antigen (EF1a, RFP-Puro) lentivirus in PBS	
<u>LVP557-PBS</u>	SV40 Large T-antigen (EF1a, no selection) lentivirus in PBS	



Storage: <-70 °C, avoid repeat freeze/thaw cycles, stable for > 6 months.

Product Description:

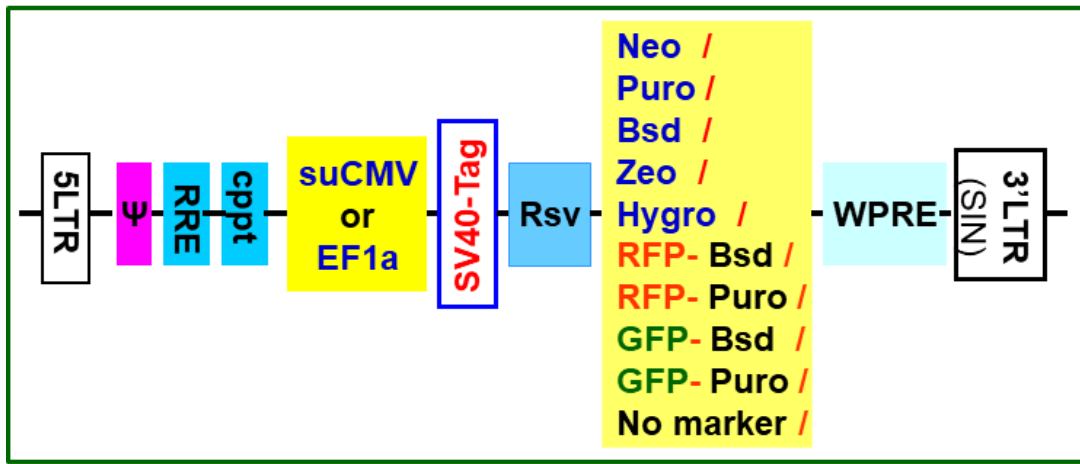
Lentiviral particles or lentivirus is a gene delivery tool produced from lentivectors for gene expression or knockdown. GenTarget's lentivector system is Human Immunodeficiency Virus-1 (HIV) based plasmids for gene expression and knockdown. The lentivectors are used to generate lentiviral particles (lentivirus) that can be transduced into almost all kinds of mammalian cells, including stem cells, primary cells, and non-dividing cells both *in vivo* and *in vitro*. Lentiviral Particles stably integrate into the transduced cells' genome for long term expression, making it a great gene transfer agent.

SV40 large T antigen (Simian Vacuolating Virus 40 T-Antigen) (click to see its coding sequence), is a hexamer protein involved in viral genome replication and regulation of the host cell cycle. It is used as a model protein to study nuclear localization signals and other viral applications. **It also widely used for cell immortalization for variety of cell types.**

SV40 large T-antigen expression lentivirus are generated from GenTarget's re-engineered lentivector system. The SV40 large T-antigen gene, was fully verified by sequencing, expressed under an enhanced **CMV** (suCMV) or enhanced **EF1a** promoter. VSV-G pseudotyped lentiviral particles are generated in 293T cell, and packaged in DMEM medium with 10% serum or in serum free PBS solution, supplied as 200ul/per vial at $1\sim 5 \times 10^7$ IFU/ml.

T-antigen was expression under either **suCMV promoter** (which demonstrate the strongest activity in most cell types) an **enhanced EF1a promoter** (which is active in almost all cell types and less likely to be silenced during long-term culture).

Each Lentivirus is featured with a selection marker (**Neomycin, Puromycin, Blasticidin, Zeocin, Hygromycin**), or an antibiotic-fluorescent fusion dual maker (**RFP-Bsd, RFP-Puro, GFP-Bsd, GFP-Puro**). (see **vector map scheme** above). When desired, you can select the lentivirus does not contain any selection markers. See the scheme below showing the lentivector's core structure.



The products are provided as 200 ul aliquots in two formats:

- 1) in DMEM medium containing 10% and 10x Polybrene (60 ug/ml);
- 2) in PBS solution for usage in serum-free cell culture;

For general questions about our ready-to-use particles, please see [FAQ for pre-made lentiviral particles](#) (.pdf) on our website.
(<http://www.gentarget.com/pdf/FAQ-Premade-Lentiviral-particles.pdf>).

Key features:

1. **Flexible selection markers:** you can select the product with your desired antibiotic selection marker, or fluorescent selection marker, or no any selection.
2. The strongest **suCMV promoter** make the pre-made virus a ideal tool for mammalian protein expression, stable cell line construction and enzymatic assays both in vivo or in vitro (see schematic vector map below).
3. The enhance **EF1a promoter** is active in all cell types and do not be silenced during long-term culture.
4. **Each and ready to use:** Simply add 50ul into one well culture in 24-well plate.

Transduction Protocols:

1) Transduction Protocol for Adhesive cells :

Note: Pre-made lentivirus is provided ready to use, so it can be simply added into your cell culture; the amount of virus to add depends on cell type. For quick transduction, add 50 µl of virus into each well of 24-well-plate where cell density is 50% to 75%. After 72 hours (no need to change medium), visualize positive transduction



rate by fluorescence microscopy. For stable cell line generation, pass cells into medium containing antibiotic or perform fluorescence cell sorting followed by antibiotic selection.

Day 0:

Seed cells in complete medium at the appropriate density and incubate overnight.

Note: at the time of transduction, cells should be 50%-75% confluent. For example, seed HeLa cells at $0.5 \times 10^5/\text{ml} \times 0.5\text{ml}$ in a well of a 24-well plate.

Day 1:

- Remove the culture medium and add 0.5ml fresh, warm, complete medium.
- Thaw the pre-made lentiviral stock at room temperature and add the appropriate amount of virus stock to obtain the desired MOI.
- Return cells to 37°C, CO₂ incubator.

Note: Try to avoid freezing and thawing. If you do not use all of the virus at one time, you may re-freeze the virus at -80 °C for future use; virus titer will decrease by ~10% for each freeze/thaw cycle.

Day 3:

At ~72hr after transduction, check the transduction rate by fluorescence microscopy or calculate the exact transduction rate by flow cytometry (FACS or Guava).

Day 3 + (optional):

Sort transduced cells by FACS, and select for antibiotic resistance. A pilot experiment should be done to determine the antibiotic's kill curve for your specific cell line (refer to the pertinent literature on generation of stable cell lines).

2) Transduction Protocol for Suspension Cells:

Grow cells in complete suspension culture medium; use a shaking flask in a CO₂ incubator if necessary.

Measure cell density. When density has reached $\sim 3 \times 10^6$ cells/ml, measured viability should be > 90%. Dilute cells into 1×10^6 cell/ml in complete medium.

Day 1:

- Thaw lentiviral particles at room temperature.



- Add premade lentiviral particles into the diluted cells at a ratio of: 50 to 100 μ l virus per 0.5 ml of cells (Note: depending on cell type, you may need to use more or less virus).
- Grow cells in a shaking flask in a CO₂ incubator.

Day 2:

At 24 hours after transduction, add an equal amount of fresh medium containing relevant antibiotics. **Note:** amount of antibiotic depends on cell type. Continue growing cells in CO₂ incubator.

Day 3:

At 72 hours after transduction, check fluorescence with a fluorescence microscope or calculate the transduction efficiency using a cell sorter such as FACS or Guava. Sort for fluorescence positive cells and maintain antibiotic selection to generate a stable cell line.

Note: Filter wavelength settings:

GFP filter: ~Ex450-490; ~Em525; **RFP** filter: ~Ex545; ~Em620;

Safety Precaution:

GenTarget lentiviral particles adapt must advanced lentiviral safety features (using the third generation vectors with self-inactivation SIN-3UTR), and the premade lentivirus is replication incompetent. However, please use extra caution when using lentiviral particles. Use the lentiviral particles in Bio-safety II cabinet. Wear glove all the time when handling Lentiviral particles! Please refer CDC and NIH's guidelines for more details regarding to safety issues.

References:

1. J Virol. 2000 November; 74(22): 10778–10784.
2. Hum Gene Ther (2003) 14: 1089-105.
3. Mol Ther (2002) 6: 162-8.
4. NIH Guidelines for [Biosafety Considerations for Research with Lentiviral Vectors](#). (Link).

Warranty:

This product is for research use only. It is warranted to meet its quality as described when used in accordance with its instructions. GenTarget disclaims any implied warranty of this product for specific application. In no event shall GenTarget be liable for any incidental or consequential damages in connection with the products. GenTarget's sole remedy for breach of this warranty should be, at GenTarget's option, to replace the products.



Related Products: GenTarget's Pre-made lentivirus Products:

Lentivirus Category (click to see)	Product Description
Target Expression	Premade lentivirus express a human, mouse or rat gene with Fluorescent-Antibiotic fusion dual selection.
Luciferase expression	Premade lentivirus express all kinds of luciferase: firefly; Renilla; Cypridina; Red-Luc; Nano-Luc , with different fluorescent and antibiotic selection.
Fluorescent markers	Preamde lentivirus express human codon optimized fluorescent protein, GFP / RFP / CFP / BFP / YFP/niRFP /unstable GFP, etc.
Cytoskeleton Imaging	Fluorescent (GFP / RFP/ CFP) labelled cell skeleton protein (Actin; Tubulin; Paxillin; Vimentin)
Cell Organelle imaging	Premade lentivirus for cell organelle imaging. The fluorescent labelled cell organelle lentivirus for living cell imaging.
CRISPR /hu CAS9	Preamde lentivirus express humanized wild-type Cas9 endonuclease for genomic editing by CRISPR
Fluorescent Fusion target	Lentivirus express the " Fluorescent-Target " fusion proteins. A desired target is fused to Green, Blue, Red , or Cyan Fluorescent Protein, demonstrating the target's functionality and localization
CRE recombinase	Premade lentivirus for expressing nuclear permeant CRE recombinase with different flurescent and antibiotic markers.
LoxP ColorSwitch	Premade lentivirus expressing "LoxP- GFP -Stop-LoxP- RFP " cassette, used to monitor the CRE recombination event in vivo.
SEAP Reporter	SEAP (Secreted Embryonic Alkaline Phosphatase) secreted expression lentivirus under different promoter.
TetR repressor expression	Premade lentivirus expressin TetR (tetracycline regulator) protein, the repressor protein for the inducible expression system.
rtTA Expression	Lentivirus express the reverse tetraccyline transcription activator gene, rtTA-M2 with different selection.
Pathway Reporter	Different Report lentivirus (Luc, RFP, GFP, SEAP) under a pathway specific response promoter.



Cell Immortalization	Comprehensive lentivirus for cell immortalization, for different cell types.
Cell Specific reporter	Different Report lentivirus driven by cell specific promoter.
Infectious Antigens	Lentivirus express all kinds of infectious antigens.
Viral Like Particle (VLP)	Lentiviral particles pseudo-typed with high density of surface envelope protein.
Immuno Therapy	Lentivirus products for Immuno Therapy application.
iPS factors	Premade lentivirus for human and mouse iPS (Myc, NANOG, OCT4, SOX2, FLK4) factors with different fluorescent and antibiotic markers
LacZ expression	Express different full length β-galactosidase (lacZ) with different selection markers
Anti-miRNA lentivirus	Pre-made lentivirus expression a specific anti-miRNA cassette.
Pre-made shRNA lentivirus	Premade shRNA lentivirus for knockdown a specific genes (P53, LacZ, Luciferase and more).
microRNA and anti-microRNA lentivirus	Premade lentivirus expression human or mouse precursor miRNA . And anti-miRNA lentivector and virus for human and mouse miRNA.
Negative control lentiviruses	Premade negative control lentivirus with different markers : serves as the negative control of lentivirus treatment, for validation of the specificity of any lentivirus target expression effects.
Other Enzyme	Ready-to-use lentivirus, expressing specific enzymes with different selection markers.