



**Lentivirus, fluorescent controls:**  
for validation of tetracycline inducible expression system

Cat#	Product Name	Amounts
<a href="#"><u>LVP800-PBS</u></a>	<b>GFP</b> (TetCMV-Puro), Concentrated Lentivirus	1x10 <sup>8</sup> IFU/ml x 200ul  in PBS solution, premixed with 10x Polybrene (60ug/ml)
<a href="#"><u>LVP1399-PBS</u></a>	<b>GFP</b> (TetCMV, <b>Bsd</b> ), Concentrated Lentivirus	
<a href="#"><u>LVP801-PBS</u></a>	<b>RFP</b> (TetCMV, <b>Puro</b> ), Concentrated Lentivirus	
<a href="#"><u>LVP802-PBS</u></a>	<b>CFP</b> (TetCMV, <b>Puro</b> ), Concentrated Lentivirus	
<a href="#"><u>LVP803-PBS</u></a>	<b>BFP</b> (TetCMV, <b>Puro</b> ), Concentrated Lentivirus	
<a href="#"><u>LVP024-PBS</u></a>	<b>GFP</b> ( <b>RFP</b> -Bsd) inducible control, Concentrated Lentivirus	
<a href="#"><u>LVP357-PBS</u></a>	<b>YFP</b> ( <b>RFP</b> -Bsd) inducible control, Concentrated Lentivirus	
<a href="#"><u>LVP531-PBS</u></a>	<b>RFP</b> ( <b>GFP</b> -Puro) inducible control, Concentrated Lentivirus	

**Storage:** -80 °C, avoid repeat freeze/thaw cycles. Stable for 12 months

## 1. Product Description:

Lentivectors are HIV-1 (Human Immunodeficiency Virus 1) derived plasmids. They generate replication-incompetent lentivirus that can be transduced into almost all types of mammalian cells, including primary and non-dividing cells. Lentiviral particles (LP) are lentivirus supernatant generated from lentivectors express a specific gene or RNAi construction.

Lentivirus is the easiest and most effective method for delivering genes into the majority of mammalian cell types, including non-dividing and primary cells. It allows genes to be integrated into the host cell genome for long-term expression.



GenTarget provides pre-made [optional inducible expression](#) lentiviruses for fluorescent proteins or specific human or mouse genes with various selection markers.

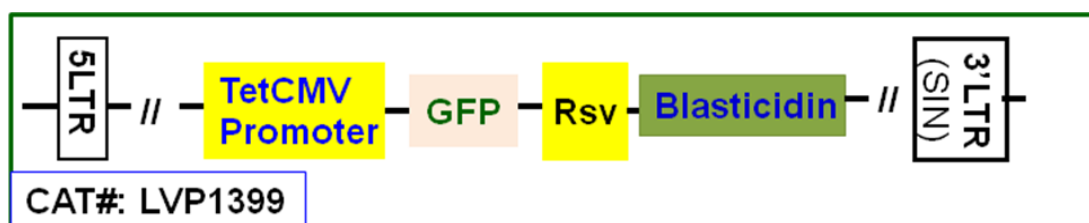
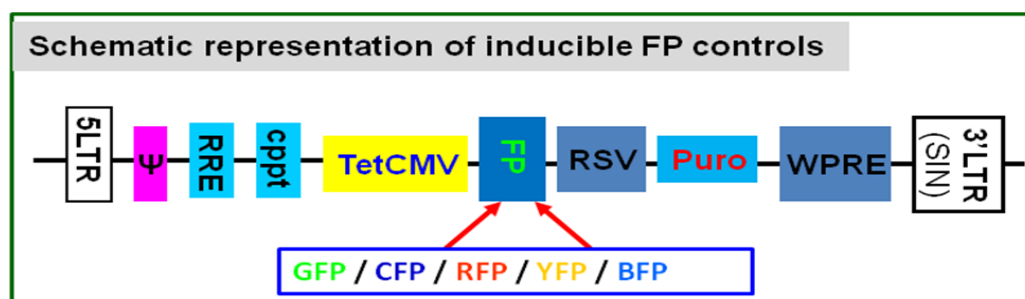
To validate the optional inducible system in your cell line, GenTarget provides a set of lentivirus controls which have been generated from GenTarget's [optional inducible lentiviral system](#).

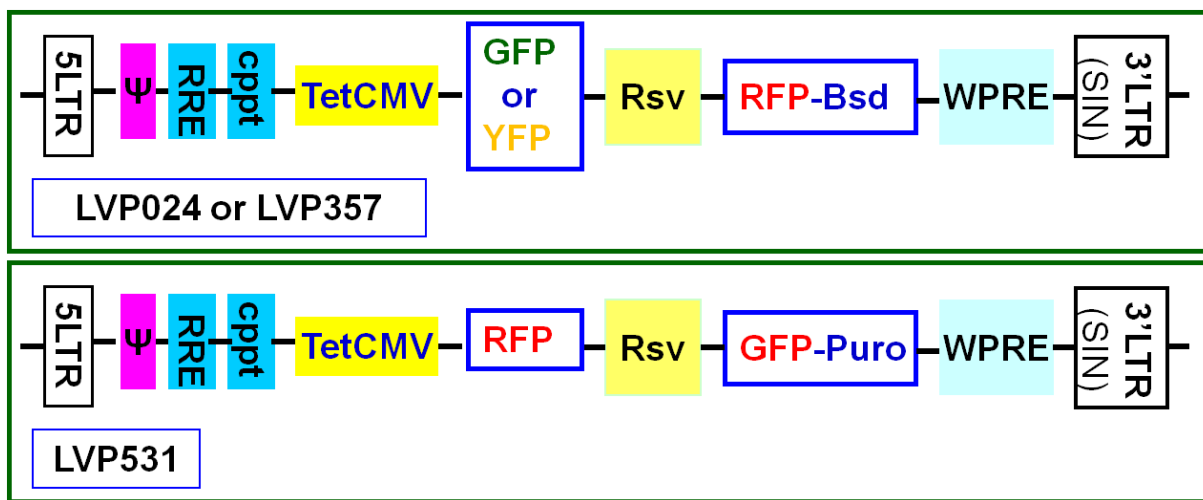
The inducible controls contain a fluorescent protein under control of the optional inducible promoter (**TetCMV**), enabling convenient verification of tetracycline-inducible effects by simple monitoring of the **GFP, RFP YFP or BFP** signal under a fluorescence microscope. The controls also contain an antibiotic or a fluorescent-antibiotic fusion dual selection marker under a RSV promoter which is a constitutive promoter and not affected by induction. The marker provides a convenient way to monitor viral transduction efficiency and select positive cells by either antibiotic killing or fluorescence sorting (See vector scheme below)

The VSV-G pseudotyped lentiviral particles are generated in 293T cells, and are provided in two formats:

- DMEM containing 10% FBS and 60 ug/ml polybrene (10x);
- PBS without any additives (suitable for serum sensitive culture or for the hard-to-transduce cells, or for *in vivo* applications).

For more details about premade particles, please see [FAQ for pre-made lentiviral particles](#) . (<http://www.gentarget.com/pdf/FAQ-Premade-Lentiviral-particles.pdf>). **Note:** all GenTarget pre-made lentivirus are intended for research use only, not for therapeutic or clinic usage.





## 2. About optional tetracycline inducible expression:

Like GenTarget's target-specific lentiviruses, the optional inducible lentivirus controls **can be used for regular constitutive high expression without the requirement for tetracycline induction, optionally, they can also be used for tetracycline inducible expression.** The inducible CMV promoter (TetCMV) has two copies of the tetracycline operator sequence. Expression becomes inducible **only when the tetracycline regulator protein (TetR) is present** in advance; in this case, TetR stops transcription, which can be activated by the addition of tetracycline. Inducible expression is tetracycline dose dependent; generally, 1-2 µg/ml of tetracycline is used.

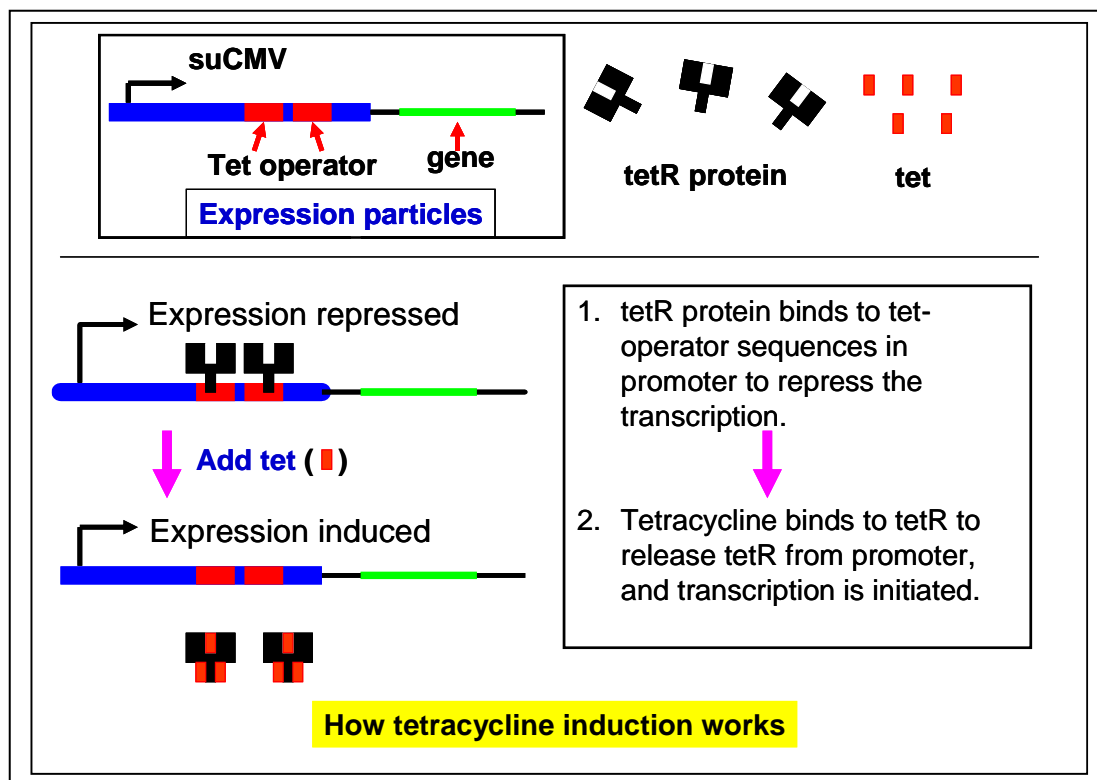
If inducible expression is desired, the repressor regulator protein (TetR) must be expressed in advance or at the same time as transduction. The presence of tetR can be achieved by the following methods:

- 1) **TetR stable cell lines** that constitutively express the TetR protein;
- 2) Co-transfection with a TetR expression plasmid and a target-inducible expression vector;
- 3) Co-transduction with TetR lentiviral particles and inducible gene expression lentiviral particles

Co-transduction with GenTarget's premade TetR lentiviral particles is the best method for delivering the TetR protein.



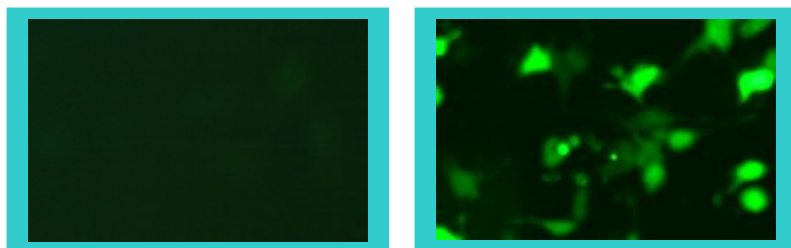
The image below illustrates how inducible expression works.



### 3. Key features:

- 1) High GFP, YFP, and RFP inducible expression levels and high viral titer
- 2) Convenient monitoring of transduction efficiency by the constitutively expressed RFP or GFP signal.
- 3) Dual markers: transduced cells can be sorted by fluorescent signal or selected for antibiotic resistance.

#### Inducible expression sample images:



**Sample image for inducible expression:** 50ul of GFP inducible particles (Cat#: [LVP024](#)) were added into **TetR-293 stable cells** (Cat#: [SC005-Bsd](#)). And 2ug/ml final of tetracycline was added at 3 days post transduction. Image were taken at 24 hours after



induction, the left image without induced, the right image induced by 2 ug/ml final Tetracycline.

#### 4. Safety Precaution:

Gentarget lentiviral particles adapts 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 at handling Lentiviral particles! Please refer CDC and NIH's guidelines for more details regarding to safety issues.

#### 5. References:

- 1) OGorman et al., 1991; Sauer, 1994).
- 2) Molecular Therapy (2003) 7, 460–466;
- 3) Annu Rev Microbiol. 1994;48:345-69.
- 4) Microbiol Mol Biol Rev. 2005 Jun;69(2):326-56.
- 5) NIH Guidelines for [Biosafety Considerations for Research with Lentiviral Vectors](#). (Link).
- 6) [CDC guidelines for Lab Biosafety levels](#) (Link).

#### 6. Warranty:

This product is warranted to meet its quality as described when used accordance with its instructions. Gentarget disclaims any implied warranty of this product for particular 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.

#### 7. Attachment: GenTarget's pre-made lentivirus product categories.

<b>Product Category</b>	<b>Product Description (please click into each category's page)</b>
<a href="#">Pathway Reporter</a>	Repoter Lentivirus for all kinds of pathway screening assays
<a href="#">Cell Immortalization</a>	Lentivirus for cell immortalization: Large T-antigen, hTERT, EBNA1/EBNA2, HpV16-E6/E7, Adenovial E1A, Kras_G12V, HOXA9, et al.
<a href="#">ImmunoOncology Research</a>	Lentivirus products for immuno therapy research: CAR and TCR; Assay Cell Lines for T-cell targeted killing assay and other cell-based assays; over-expression lentivirus products for the immune response targets; Cell surface antigens (CDs); immune checkpoint / Receptors; CRISPR gene Repair and knock-IN lentivirus; CRISPR knockout lentivirus;
<a href="#">CAR-T, TCR Lentivirus</a>	<b>CARs</b> Lentivirus: Anti-CD19 /CD20 /CD22 /BCMA /hHER2 /HLA-A2 /TGFβ; <b>TCRs</b> : MART-1/ NY-ESO1/ CD1d-α-GalCer/ TRαV3-F2A-TRβV5-6;



<b>Product Category</b>	<b>Product Description (please click into each category's page)</b>
<a href="#">CRISPR Gene Editing</a>	Preamde lentivirus express humanized wild-type <b>Cas9</b> endonuclease, the <b>dCas9</b> , gRNAs, <b>CRISPR</b> gene editing research
<a href="#">Epigenomic: CRISPRi and CRISPRa</a>	" <b>dCas9-Protein</b> " fusion Lentivirus for epigenomic modification, resulted in CRISPR interference (CRISPRi) or activation (CRISPRa).
<a href="#">Cell-Specific Reporter</a>	a set of reporter lentiviruses to express a luminescence or fluorescent reporter (firefly Luciferase, Renilla luciferase, RFP or GFP fluorescent marker) under a tissue specific promoter
<a href="#">Infectious Antigens</a>	Lentivirus that express all kinds of infectious antigens with C-term 6His-tag.
<a href="#">Virus Like Particles (VLP)</a>	Lentiviral Like Particles, pseudo-typed with a different envelope proteins.
<a href="#">Non-integrating LV</a>	Integration Defective Lentivirus, express different targets for transient expression without the unwanted insertional mutagenesis.
<a href="#">shRNA Knockdown</a>	Knockdown verified and customized shRNA lentivirus for target knockdown,
<a href="#">microRNA lentivirus</a>	Premade lentivirus expression human or mouse <b>precursor miRNA</b> . And <b>anti-miRNA</b> lentivector and virus for human and mouse miRNA.
<a href="#">Anti-miRNA lentivirus</a>	Pre-made lentivirus expression a specific anti-miRNA cassette.
<a href="#">Human and mouse ORFs</a>	Premade lentivirus express a <b>human, mouse or rat</b> gene with RFP-Blasticidin fusion dual markers.
<a href="#">Luciferase expression</a>	Premade lentivirus for all kinds of luciferase protein expression: <b>firefly and Renilla, Red-Luc and more</b> , with different antibiotic selection markers.
<a href="#">Fluorescent Markers</a>	Lentivirus express all commonly used fluorescent proteins: GFP, RFP, CFP, BFP YFP, mRFP, unstable GFP and others.
<a href="#">Luminescent Imaging</a>	Lentivirus express Nano-Lantern as Bio-probes for in vivo imaging of sub-cellular structural organization and dynamic processes in living cells and organisms



<b>Product Category</b>	<b>Product Description (please click into each category's page)</b>
<a href="#">Sub-cellular Imaging</a>	Lentivirus contain a well-defined organelle targeting signal fused to a fluorescent protein, great tools for live-cell imaging and for dynamic investigation of sub-cellular signal pathways.
<a href="#">Cytoskeleton Imaging</a>	A fluorescent marker (GFP, RFP or CFP) fusion with a cellular structure protein, provides a convenient tool for visualization of cytoskeletal structure
<a href="#">Unstable GFP</a>	Lentivirus express the destabilized GFP (uGFP) which provides fast turnover responses in signal pathway assay and in knockdown / knockout detection
<a href="#">near-infrared RFP</a>	The near-infrared Red fluorescent (niRFP) expression Lentiviruses provides the whole-body images with better contrast and brighter images
<a href="#">Fluorescent-ORF fusion</a>	Pre-made lentivirus expression a " <b>GFP/RFP/CFP-ORF</b> " fusion target.
<a href="#">CRE recombinase</a>	Premade lentivirus for expressing <b>nuclear permeant CRE</b> recombinase with different fluorescent and antibiotic markers.
<a href="#">CRE, Flp ColorSwitch</a>	Lentivirus expressing "LoxP-GFP-Stop-LoxP-RFP" or "FRT-GFP-Stop-FRT-RFP" cassette, used to monitor the CRE or Flp recombination event in vivo.
<a href="#">SEAP Reporter</a>	lentivirus expressing SEAP under different promoters (TetCMV, EF1a, CAG, Ubc, mPGK, Actin-beta or a signal pathway responsive promoter),
<a href="#">TetR Repressor</a>	Premade lentivirus expressing TetR (tetracycline regulator) protein, the repressor protein for the inducible expression system.
<a href="#">rtTA Expression</a>	rtTA binds to the tetracycline operator element (TetO) in the presence of doxycycline (Dox). Used for Tet-On /OFF inducible system.
<a href="#">iPS factors</a>	Premade lentivirus for human and mouse iPS ( <b>Myc, NANOG, OCT4, SOX2, FLK4</b> ) factors with different fluorescent and antibiotic markers
<a href="#">LacZ expression</a>	Express different full length <b><math>\beta</math>-galactosidase (lacZ)</b> with different selection markers
<a href="#">Negative control lentiviruses</a>	Premade <b>negative control lentivirus with different markers</b> : serves as the negative control of lentivirus treatment, for validation of the specificity of any



# GenTarget Inc

7930 Arjons Drive, Suite B  
San Diego, CA 92121, USA  
Phone: 1 (858) 265-6446  
Fax: 1 (800) 380-4198  
Email: [orders@gentarget.com](mailto:orders@gentarget.com)

<b>Product Category</b>	<b>Product Description (please click into each category's page)</b>
	lentivirus target expression effects.
<a href="#">Other Enzyme expression</a>	Ready-to-use lentivirus, expressing a specific enzymes with different selection markers.
<a href="#">Ultra titer lentivirus</a>	Ultra-titer lentivirus used for the hard-to-transduced cells and for in vivo manipulation of sperm cells, or stem cells.