GenTarget Inc

7930 Arjons Drive, Suite B
San Diego, CA 92126
Phone: (858) 2656446
Fax: (800) 3804198
Email: orders@gentarget.com

Pre-made Lentiviral Particles for β- Lactamase

Cat#	Product Name	Amounts
LVP335-GB	β-Lactamase (GFP-Bsd) lentiviral particles	$1x10^7$ IFU/ml x 200ul
LVP335-RB	β-Lactamase (RFP-Bsd) lentiviral particles	$1x10^7$ IFU/ml x 200ul
LVP335-Neo	β-Lactamase (Neo) lentiviral particles	$1x10^7$ IFU/ml x 200ul
LVP335-Bsd	β-Lactamase (Bsd) lentiviral particles	$1x10^7$ IFU/ml x 200ul
LVP335-Puro	β-Lactamase (Puro) lentiviral particles	$1x10^7$ IFU/ml x 200ul
LVP335-GP	β-Lactamase (GFP-Puro) lentiviral particles	$1x10^7$ IFU/ml x 200ul
LVP335-RP	β-Lactamase (RFP-Puro) lentiviral particles	$1x10^7$ IFU/ml x 200ul
LVP335-luc	β-Lactamase (Luciferase) lentiviral particles	$1x10^7$ IFU/ml x 200ul

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

Product Description:

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.

Pre-made **β-Lactamase** (type: TEM-1) lentiviral particles are generated from GenTarget's **optional inducible lentiviral system** with different selection markers (see vector scheme below). **β-Lactamase** was expressed under suCMV promoter, selection marker under Rsv promoter (see vector schematic map below). VSV-G pseudotyped lentiviral particles are generated in 293T cell.

β-Lactamase are enzymes produced by some bacteria and are responsible for their resistance to beta-lactam antibiotics, like penicillins. Up to 90% of ampicillin resistance in E. coli is due to the production of TEM-1 type of β-Lactamase. It catalyzes the hydrolysis and aminolysis of depsipeptides, and is used in enzyme

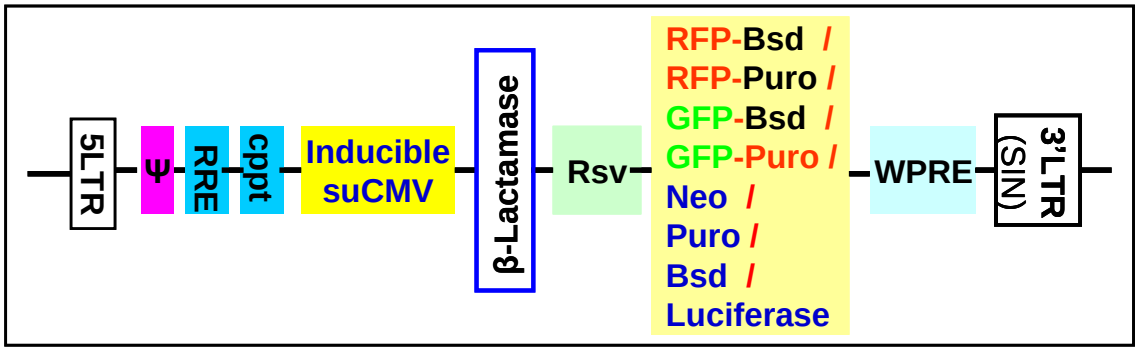
GenTarget Inc
7930 Arjons Drive, Suite B
San Diego, CA 92126
Phone: (858) 2656446
Fax: (800) 3804198
Email: orders@gentarget.com

kinetic studies (in all kinds of β-Lactamase based colorimetric reporter assays) and other antimicrobioal programs for identification of its inhibitor.

Ready-to-use Lactamase lentiviral particles are provided in two formats:

- packaged in 10% of FBS in DMEM containing 10% FBS and 60ug/ml of polybrene;
- particles were concentrated and buffer exchanged in PBS without any human or animal origin components;

For more details about premade particles, please see **FAQ for pre-made lentiviral particles** (.pdf).



Key features:

1. High Lactamase expression level and high viral titer;
2. Used as constitutive expression, or optionally as tetracycline inducible expression;
3. Easy transduction monitoring via the fluorescent signal;
4. Dual markers: transduced cells can be sorted via a fluorescent signal or selected via antibiotics;
5. **The lentiviruses are ready and easy to use; simply add 50ul into your cell culture in 24-well plate.** (**Note**: dependent upon your specific needs, you may design the transduction with different MOI for different levels of expression.)

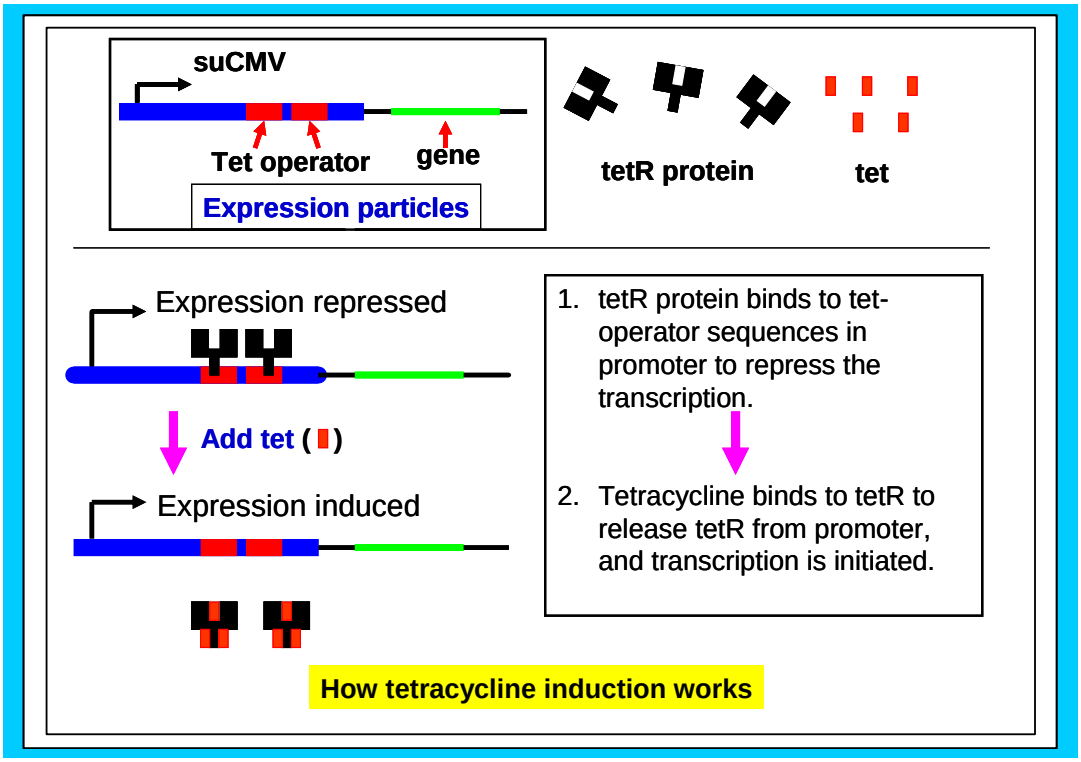
About the inducible expression:

Lactamase was expressed under a tetracycline inducible suCMV promoter. All ready-to-use expression Lactamase particles can be used for constitutive high expression of Lactamase without using any induction. However, the particles can be **optionally** used as tetracycline induced expression when the tetracycline regulator protein (tetR) is present in advance. The tetR must be expressed in advance to stop the particles' transcription, and the expressed was activated by adding tetracycline (see the picture below for details). This inducible expression is tetracycline's dose dependent. In general, the amount of tetracycline is used at 1ug/ml final concentration. The image below illustrates how the inducible expression works.

GenTarget Inc
7930 Arjons Drive, Suite B
San Diego, CA 92126
Phone: (858) 2656446
Fax: (800) 3804198
Email: orders@gentarget.com

If inducible expression is desirable, the repressor regulator (tetR) expression must be delivered in advance or at the same time for transduction. The presence of tetR can be achieved by the following methods:

- tetR is already expressed in a stable cell line that constantly express tetR protein in advance;
- Transfect a tetR expression plasmid before transduce lentiviral particles;
- Co-transduce both the tetR repressor particles and the gene expression particles into the sample cells. The double transduced cells can be selected by double antibiotics, and then used for inducible expression. Gentarget provides "**premade tetR particles**" with different antibiotics for double selecting the transduced cells.



Note: Filter wavelength settings:

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

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-

7930 Arjons Drive, Suite B
San Diego, CA 92126
Phone: (858) 2656446
Fax: (800) 3804198
Email: orders@gentarget.com

safety II cabinet. Ware glove all the time at handling Lentiviral particles! Please refer CDC and NIH's guidelines for more details regarding to safety issues.

References:

1. Molecular Therapy (2003) 7, 460–466; doi: 10.1016/S1525-0016(03)00024-8
2. Annu Rev Microbiol. 1994;48:345-69.
3. Microbiol Mol Biol Rev. 2005 Jun;69(2):326-56.
4. NIH Guidelines for Biosafety Considerations for Research with Lentiviral Vectors. (Link).
5. CDC guidelines for Lab Biosafety levels (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 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.

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

Product Category	Product Description (please click into each category's page)
Pathway Reporter	Repoter Lentivirus for all kinds of pathway screening assays
Cell Immortalization	Lentivirus for cell immortalization: Large T-antigen, hTERT, EBNA1/EBNA2, HpV16-E6/E7, Adenovial E1A, Kras_G12V, HOXA9, et al.
ImmunoOncology Research	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;
CAR-T, TCR Lentivirus	**CARs** Lentivirus: Anti-CD19 /CD20 /CD22 /BCMA /hHER2 /HLA-A2 /TGFβ; **TCRs**: MART-1/ NY-ESO1/ CD1d-α-GalCer/ TRαV3-F2A-TRβV5-6;
CRISPR Gene Editing	Preamde lentivirus express humanzied wild-type **Cas9** endonuclease, the **dCas9**, gRNAs, **CRISPR** gene editing research

GenTarget Inc

7930 Arjons Drive, Suite B
San Diego, CA 92126
Phone: (858) 2656446
Fax: (800) 3804198
Email: orders@gentarget.com

Product Category	Product Description (please click into each category's page)
Epigenomic: CRISPRi and CRISPRa	"**dCas9-Protein**" fusion Lentivirus for epigenomic modification, resulted in CRISPR interference (CRISPRi) or activation (CRISPRa).
Cell-Specific Reporter	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
Infectious Antigens	Llentivirus that express all kinds of infectious antigens with C-term 6His-tag.
Virus Like Particles (VLP)	Lentiviral Like Particles, pseudo-typed with a different envelope proteins.
Non-integrating LV	Integration Defective Lentivirus, express different targets for transient expression without the unwanted insertional mutagenesis.
shRNA Knockdown	Knockdown verifeid and customized shRNA lentivirus for target knockdown,
microRNA lentivirus	Premade lentivirus expression human or mouse **precursor miRNA**. And **anti-miRNA** lentivector and virus for human and mouse miRNA.
Anti-miNA lentivirus	Pre-made lentivirus expression a specific anti-miRNA cassette.
Human and mouse ORFs	Premade lentivirus expressin a **human, mouse or rat** gene with RFP-Blastididin fusion dual markers.
Luciferase expression	Premade lentivirus for all kinds of luciferase protein expression**: firefly and Renilla, Red-Luc and more,** with different antibiotic selection markers.
Fluorescent Markers	Lentivirus express all commonly used fluorescent proteins: GFP, RFP, CFP, BFP YFP, niRFP, unstable GFP and others.
Luminescent Imaging	Lentivirus express Nano-Latern as Bio-probes for in vivo imaging of sub-cellular structural organization and dynamic processes in living cells and organisms
Sub-cellular Imaging	Lentivirus contain a well-defined organelle targeting signal fusioned to a fluorescent protein, great tools for live-cell imaging and for dynamic investigation of sub-cellular signal pathways.

GenTarget Inc

7930 Arjons Drive, Suite B
San Diego, CA 92126
Phone: (858) 2656446
Fax: (800) 3804198
Email: orders@gentarget.com

Product Category	Product Description (please click into each category's page)
Cytoskeleton Imaging	A fluorescent marker (GFP, RFP or CFP) fusion with a cellular structure protein, provides a convenient tool for visualization of cytoskeletal structure
Unstable GFP	Lentivirus express the the destabilized GFP (uGFP) which provides fast turnover responses in signal pathway assay and in knockdown / knockout detection
near-infrared RFP	The near-infrared Red fluorescent (niRFP) expression Lentiviurs provides the whole-body images with better contrast and brighter images
Fluorescent-ORF fusion	Pre-made lentivirus expression a "**GFP/RFP/CFP-ORF**" fusion target.
CRE recombinase	Premade lentivirus for expressing **nuclear permeant CRE** recombinase with different flurescent and antibiotic markers.
CRE, Flp ColorSwtich	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.
SEAP Reporter	lentivirus expressing SEAP under different promoters (TetCMV, EF1a, CAG, Ubc, mPGK, Actin-beta or a signal pathway responsive promoter),
TetR Repressor	Premade lentivirus expressin TetR (tetracycline regulator) protein, the repressor protein for the inducible expression system.
rtTA Expression	rtTA binds to the tetracycline operator element (TetO) in the presence of doxycycline (Dox). Used for Tet-On /OFF inducible system.
iPS factors	Premde lentivirus for human and mouse iPS **(Myc, NANOG, OCT4, SOX2, FLF4**) factors with different fluorescent and antibitoic markers
LacZ expression	Express different full length **β- galactosidase (lacZ)** with different selection markers
Negative control lentiviruses	Premade **negative control lentivirus with different markers**: serves as the negative control of lentivurs treatment, for validation of the specificity of any lentivirus target expression effects.
Other Enzyme expression	Ready-to-use lentivirus, expressing a specific enzymes with different selection markers.
Ultra titer	Ultra-titer lentivirus used for the hard-to-transduced

GenTarget Inc

7930 Arjons Drive, Suite B
San Diego, CA 92126
Phone: (858) 2656446
Fax: (800) 3804198
Email: orders@gentarget.com

Product Category	Product Description (please click into each category's page)
lentivirus	cells and for in vivo manipulation of sperm cells, or stem cells.