



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

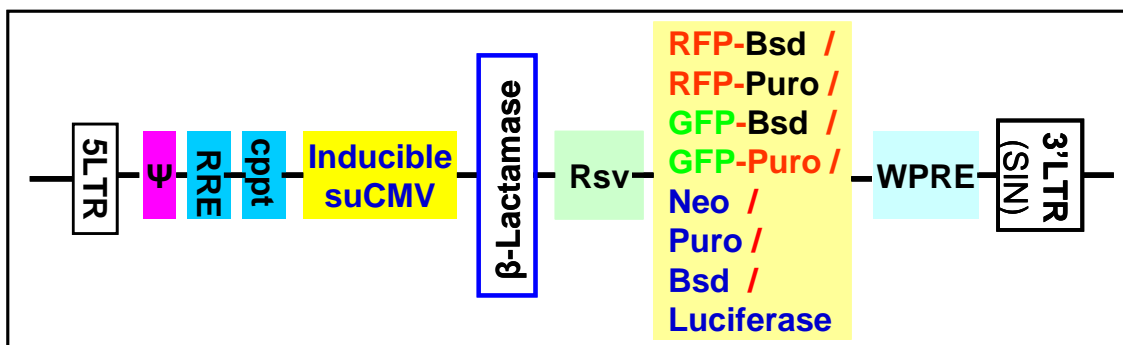


kinetic studies (in all kinds of β -Lactamase based colorimetric reporter assays) and other antimicrobial programs for identification of its inhibitor.

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.)

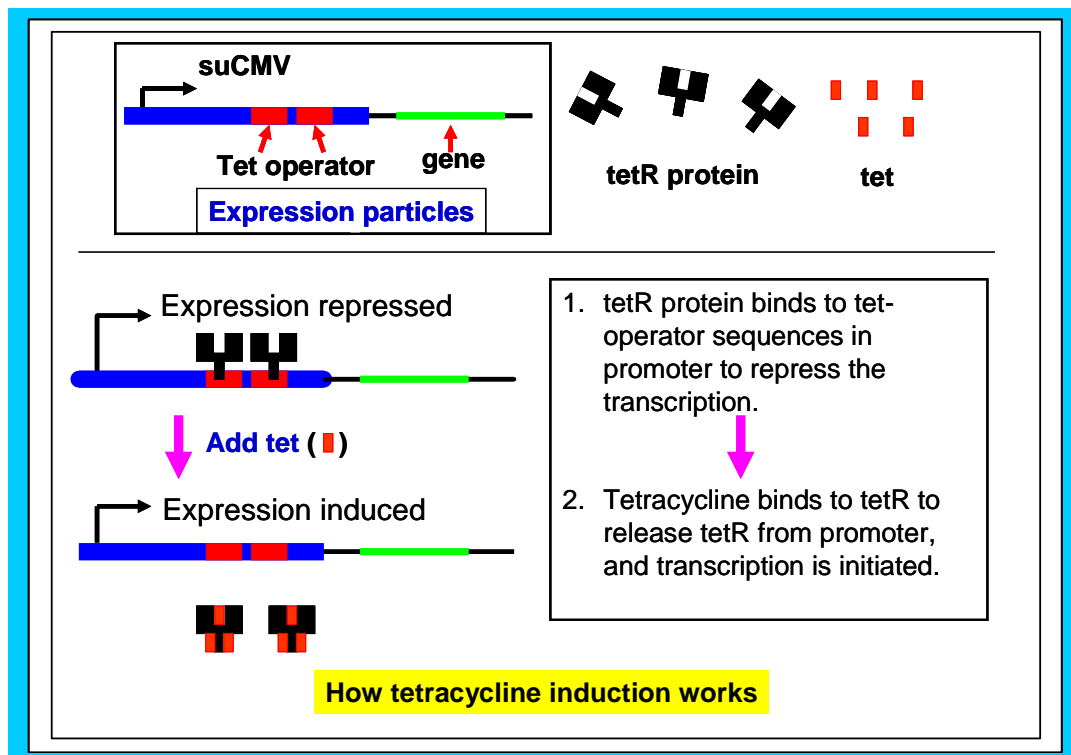
About the inducible expression:

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.



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-



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.

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 category:

Product Category	Product Description (please click category name to see product's pages)
Human, mouse or rat ORFs	Premade lentivirus expressing a human, mouse or rat gene with RFP-Blasticidin fusion dual markers.
Fluorescent markers	Premade lentivirus express human codon optimized fluorescent protein, GFP / RFP / CFP / BFP / YFP .
Luciferase expression	Premade lentivirus for all kinds of luciferase protein expression: firefly and Renilla with different antibiotic selection markers.
CRE recombinase	Premade lentivirus for expressing nuclear permeant CRE recombinase with different fluorescent and antibiotic markers.
LoxP ColorSwitch	Premade lentivirus expressing "LoxP-GFP-Stop-LoxP-RFP" cassette, used to monitor the CRE recombination event in vivo.
CRISPR /hu CAS9	Premade lentivirus express humanized wild-type Cas9 endonuclease for genomic editing with CRISPR
TetR inducible expression repressor	Premade lentivirus expressing TetR (tetracycline regulator) protein, the repressor protein for the inducible expression system.



iPS factors	Premde lentivirus for human and mouse iPS (Myc, NANOG, OCT4, SOX2, FLF4) factors with different fluorescent and antibitoic markers
T-antigen Expression	Express SV40 large T antigen with different selection markers
Cell Organelle imaging	Premade lentivirus for cell organelle imaging. The fluorescent marker GFP/RFP/CFP was sub-cellular localized in different cell organelle for living cell imaging.
LacZ expression	Express different full length β- galactosidase (lacZ) with different selection markers
Anti-miNA lentivirus	Pre-made lentivirus expression a specific anti-miRNA cassette.
Fluorescent-ORF fusion	Pre-made lentivirus expression a " GFP/RFP/CFP-ORF " fusion target.
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 lentivurs treatment, for validation of the specificity of any lentivirus target expression effects.
Other Enzyme expression	Ready-to-use lentivirus, expressing specific enzymes with different selection markers.