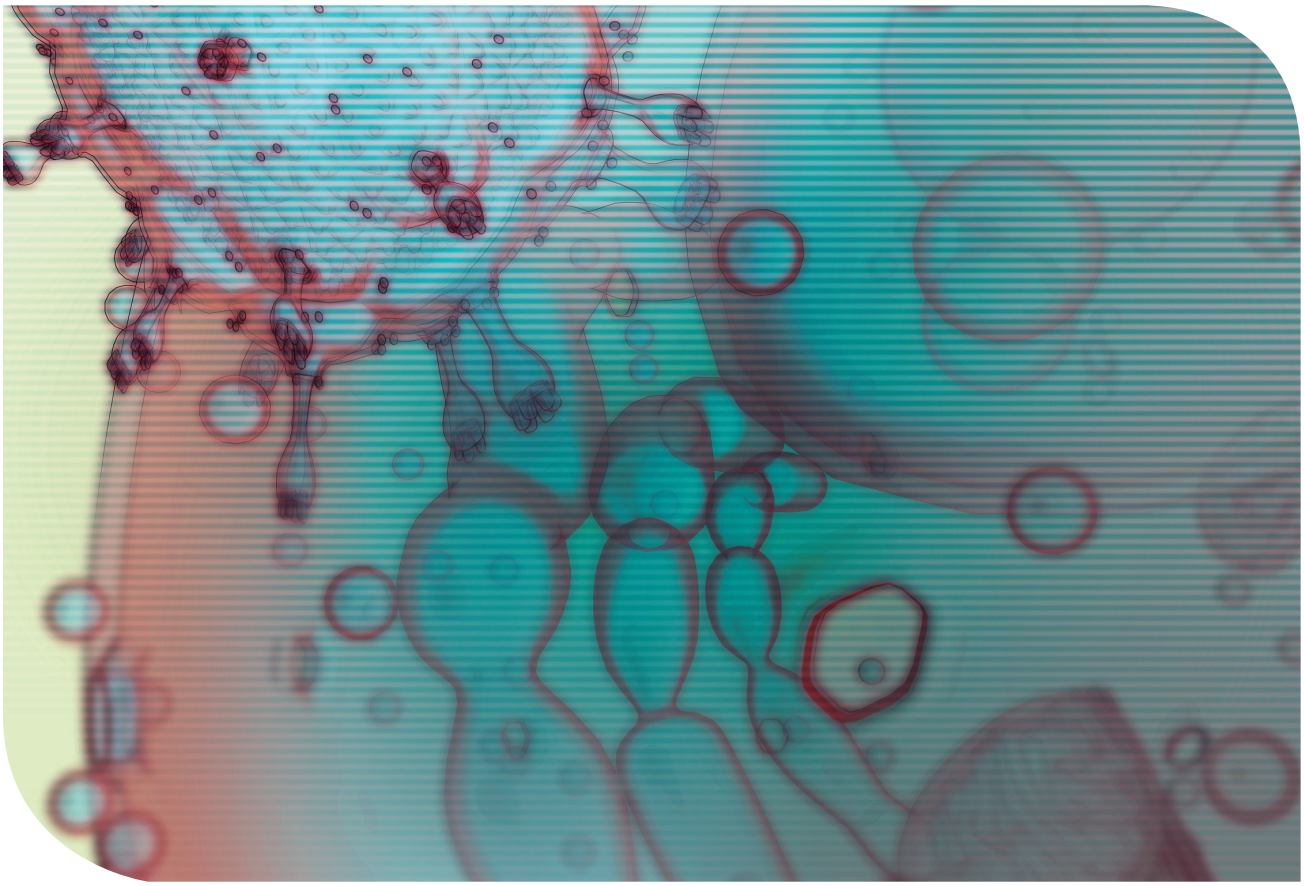
Lentiviral Solutions



Expression-Ready Clones
Lentiviral-based Expression Clones
ORF cDNA, shRNA, miRNA, Inhibitor

Packaging Systems
Lenti-Pac™ Lentiviral Packaging Kits
293Ta Packaging Cell Line
EndoFectin™ Transfection Reagents
TiterBoost™ Viral Titer Reagent

Viral Particles
Lentifect™ Lentiviral Particles
Catalog or Custom Order

GeneCopoeia™
Expressway to Discovery

Why Lentivirus

High efficiency of delivery to broad cell types

The lentiviral expression system is very effective at delivering genetic materials to whole model organisms and a wide range of mammalian cells, including non-dividing and difficult-to-transfect cells, such as neuronal cells, primary and stem cells. The efficiency of lentiviral transduction is close to 100%, making it an ideal delivery system for genes, shRNAs, miRNAs and other genetic materials.

Long-term stable expression of a transgene

The lentiviral expression system consists of sequence elements allowing efficient packaging, transduction and stable integration into the host genome of target cells, thus, enabling long-term high level of transgene expression in target cells.

High level of safety

Lentiviral vectors used for gene transfer are replication-defective and self-inactivated in transduced cells. Multiple packaging plasmids are needed for packaging replication-defective lentiviral particles and the chance of recombination to form complete replicable competent lentivirus (RCL) is minimal.

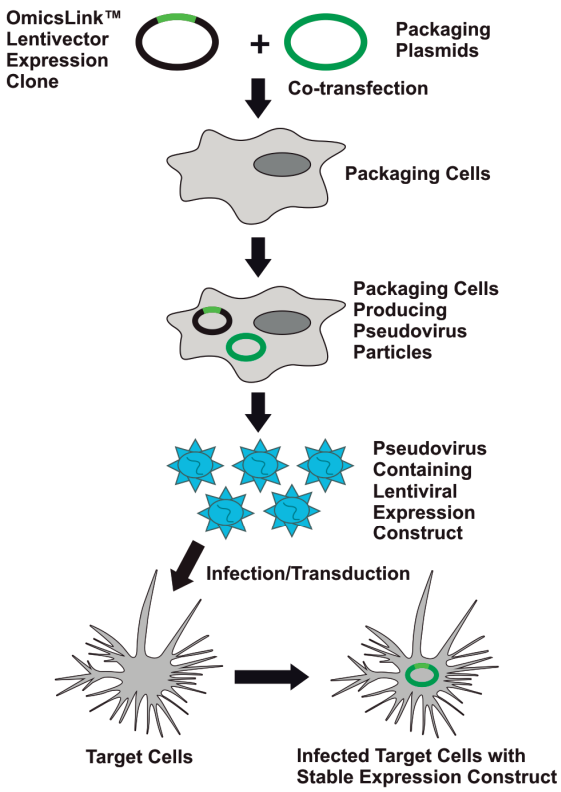


Figure 1. Illustration of how lentiviral-based gene delivery works. Note: Target cells include difficult-to-transfect and non-dividing cells.

GeneCopoeia Complete Lentiviral Solutions

Expression-ready clones

- OmicsLink™ ORF cDNA Clones
- OmicsLink™ shRNA Clones
- miExpress™ miRNA Precursor Clones
- miArrest™ miRNA Inhibitor Clones

Packaging kits and cell line

- Lenti-Pac™ Lentiviral Packaging Kits
- Lenti-Pac™ 293Ta Packaging Cell Line
- EndoFectin™ Transfection Reagent

Transduction-ready viral particles

- Premade lentiviral particles
- Custom lentivirus production services

Expression-Ready Clones

GeneCopoeia provides a large collection of lentiviral constructs for expressing ORF cDNAs, shRNAs, precursor miRNAs, or miRNA inhibitors in virtually all mammalian cell types.

OmicsLink™ ORF cDNA clones

- Fully sequenced and expression -tested
- Human and mouse genome-wide coverage
- Custom order of de novo gene synthesis
- Largest selection of vectors and fusion tags

Promoter	Selection Marker	Fusion tag (N- and/or C-terminus)		
CMV CMV5 EF1a CAG PDK SV40 Inducible	Neomycin Puromycin Hygromycin Zeomycin	HA, 3xHA Flag Myc eCFP eGFP eYFP mCherry UBC9	HaloTag* AviTag AviTag + IRES-Biotin ligase IRES-FLuciferase (Firefly) IRES-GLuciferase (Gaussia) IRES-Neomycin IRES-Puromycin	IRES-eCFP IRES-eGFP IRES-eYFP IRES-mCherry HA + IRES-eGFP Myc + IRES-eGFP Flag + IRES-eGFP

*Tev Protease site

OmicsLink™ shRNA clones

- Genome-wide coverage of human, mouse and rat
- Four shRNA constructs per target gene and guaranteed knockdown for at least one construct
- H1 or U6 promoter

Promoter	Selection marker	Reporter gene
H1, U6	Puromycin, Hygromycin, Neomycin	eGFP, mCherry

miExpress™ Precursor miRNA clones

- Fully sequenced and optimized for high expression and maturation of miRNA inside cells
- Full coverage of human, mouse and rat miRNA in miRBase database

Promoter	Selection marker	Reporter gene
H1, CMV, EF1α	Puromycin, Hygromycin, Neomycin	eGFP, mCherry

miArrest™ miRNA Inhibitor clones

- Superior potency, long-lasting inhibition and extremely low cell toxicity
- Full coverage of human, mouse and rat miRNA in miRBase database

Promoter	Selection marker	Reporter gene
H1, U6, CMV	Puromycin, Hygromycin, Neomycin	eGFP, mCherry

Packaging Systems

The GeneCopoeia Lenti-Pac™ Packaging Systems provide high titer (up to 10^{10} copies/ml), efficient transduction and superior level of protein expression. Developed using GeneCopoeia lentiviral expression-ready clones, Lenti-Pac™ Packaging Kits include an optimized lentiviral packaging plasmid mix, eGFP control clone, EndoFectin™ Lenti, a transfection reagent developed to work with lentiviral-based constructs, and TiterBoost™, a proprietary reagent that further increases titer by 5-10 folds.

Product	Description
Lenti-Pac™ Packaging Kit	Lentiviral packaging mix eGFP control clone EndoFectin™ Lenti transfection reagent TiterBoost™ viral titer reagent
Lenti-Pac™ 293Ta Lentiviral Packaging Cell Line	Low passage and authenticated 1.5 x 10^6 cells
GeneCopoeia™ GCI-L3 Chemically Competent E. coli Cells	High transformation efficiency with extremely low rates of recombination
Endofectin™ Lenti Transfection Reagents	Optimized for use with GeneCopoeia lentiviral expression systems. Transfect efficiently and with low toxicity

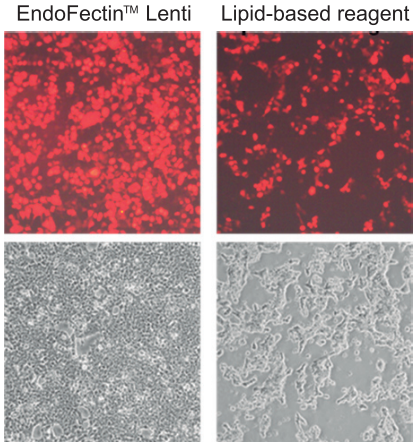


Figure 2. Comparison of Transfection Reagents HEK293T packaging cells were transfected with GeneCopoeia Lentiviral vector expressing mCherry fluorescent protein and Lenti-Pac HIV packaging mix using either EndoFectin Lenti (left panel), or a leading lipid-based transfection reagent (right panel). Expression of mCherry and cell health were checked 48 hours post-transfection using fluorescence microscopy (upper panel) or phase contrast microscopy (lower panel). The titer of lentivirus generated with EndoFectin Lenti reagent was over 20-fold higher than with the lipid-based transfection reagent.

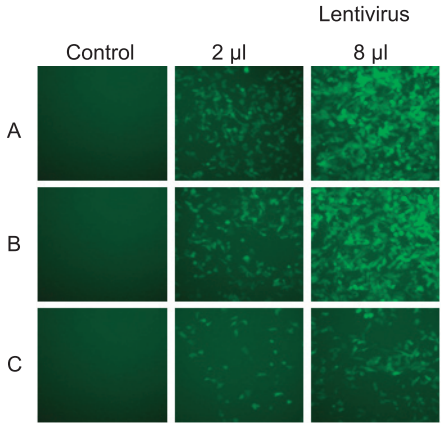


Figure 3. Comparison of Packaging Mixes H1299 cells were transduced with eGFP expressing lentiviral particles generated with three different packaging mixes:
A: GeneCopoeia's Lenti-Pac packaging mix
B: LX packaging mix
C: UM packaging mix

Lentiviral Particles

Lentiviral vectors are potent vehicles for delivering genes into a wide range of cell types including difficult-to-transfect and non-dividing cells. However, producing, concentrating and titrating lentiviral particles are time consuming and require experience to achieve high titers and consistent results.

GeneCopoeia's experienced scientific expertise consistently produces high quality and high-titer crude or purified viral particles to meet your research need in an efficient and cost-effective way.

Product	Gene	Description
Premade iPSC gene particles	• Induced pluripotent stem cell (iPSC) genes -Oct3/4, Sox2, c-Myc, Klf4, Nanog and Lin28	Transduction-ready Up to 10^9 copies/ml, crude or purified Available in 200 µl and 1 ml sizes
Premade control particles	• Positive controls-eGFP, mCherry, Firefly luciferase, Renilla luciferase • Negative control -no insert	Transduction-ready Up to 10^{10} copies/ml, crude or purified Available in 200 µl and 1 ml sizes
Custom lentiviral production services	• Any GeneCopoeia expression-ready clones of ORF cDNAs, shRNAs, precursor miRNAs and miRNA inhibitors • De novo gene synthesis and cloning services for genes not listed on GeneCopoeia website	Choices of lentiviral vectors with or without tags Custom-made vectors also available Up to 10^{10} copies/ml, crude or purified Available in 200 µl and 1 ml sizes

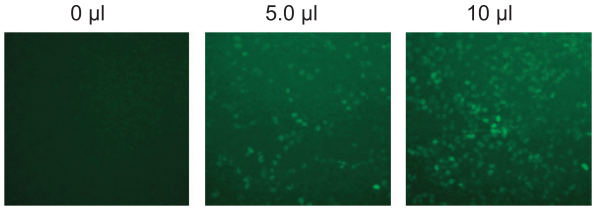


Figure 4. Transduction of H1299 cells with GeneCopoeia lentiviral particle expressing a large gene.
H1299 cells (in 24-well plate) were transduced with indicated amounts of LP-Y3533-Lv122 in the presence of 5 µg/ml of polybrene. The expression of C-terminal eGFP SMARCA4 fusion protein was checked with a fluorescence microscope 72 hours post-transduction.

ID of Y3533: SMARCA4
Length of SMARCA4 coding region: 4944 bp
Length of SMARCA4 eGFP fusion: > 5.6Kp

Count on us

- High titer crude or purified lentiviral particles
- Stringent quality control and qRT-PCR validation
- Fast delivery
- Cost effective

GeneCopoeia™

Expressway to Discovery

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