



cDNA Clones & Vectors

Your Complete Molecular Biology Solutions

ORF Clones
Non-protein Coding Clones
>100 Cloning Vectors

 **ORIGENE**
www.origene.com

OriGene Clone Offering Overview

Comprehensive. Quality. Fast Delivery.

When you need a DNA clone, be it a cDNA clone or a clone of non-coding sequence, OriGene is your best choice. Our 500,000 ready-to-ship cDNA clones offer a quick and cost-saving solution.

cDNA clones for protein expression				Clones with non-coding sequences		
	TrueClone (untagged)	TrueORF (tagged)	Lenti-ORF	Gene synthesis	miRNA plasmids	3'-UTR reporter plasmids
Main utility	Protein Expression in native form	Tagged protein expression	Tagged protein expression	Customize	miRNA over expression	Target validation for miRNA
Expression host	Mammalian	Mammalian	Mammalian	Customize	Mammalian	Mammalian
Species	Human/Mouse/ Rat	Human/Mouse/ Rat/Virus	Human/Mouse/ Rat	Any species, any sequence	Human/Mouse/ Rat	Human

How to find a clone

Search:

A search box is located at the top of every page on the OriGene website. The following terms can be used to aid you in your search.

- NCBI Accession Number (eg. NM_000044)
- Gene symbol of the gene (eg. VEGF)
- Gene name (Caspase 8)
- Clone description (eg. androgen receptor, kinase deficient mutant)

Browse:

On the clone collection page, www.origene.com/clone-set, genes can also be browsed by gene family or pathway. A few popular categories are listed below as examples.

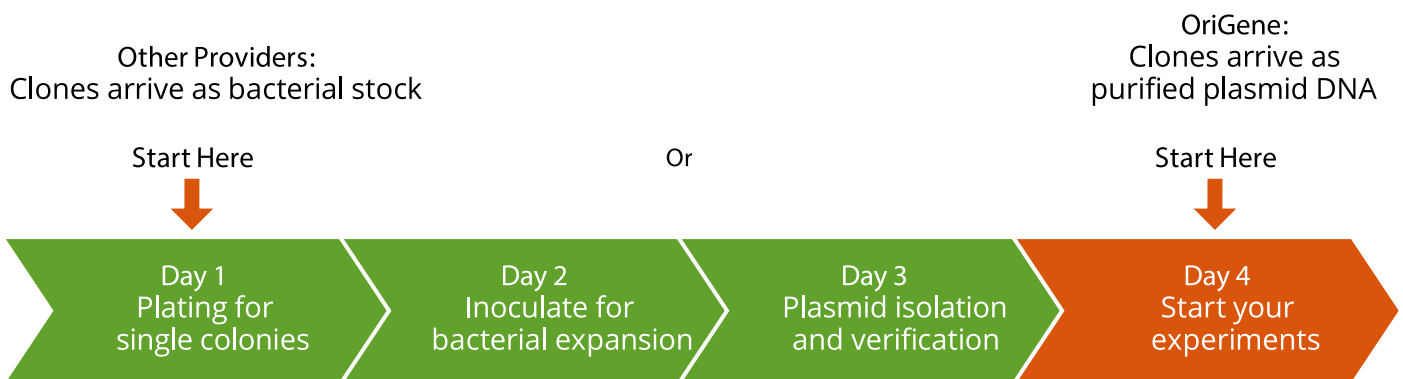
- Protein Kinase
- Wnt Pathway
- Phosphatase
- Angiogenesis
- GPCR
- Notch Pathway
- Secreted
- Tumor Metastasis

Why Should You Choose OriGene's cDNA Clones?

Quality! Selection! Delivery!

Features

- Comprehensive: Genome-wide coverage for human, mouse, rat, and virus
- Versatile: untagged or tagged clones (>100 vector options)
- Expression validation
- Transfection-ready DNA: Plasmids are purified with ion-exchange columns
- Pathway focused cDNA clone sets available



For protein-coding ORF sequences, there are two types of clones

- **TrueClones:** Library-based, full-length cDNA clones that usually contain native 5' and 3' untranslated regions in a CMV mammalian expression vector
- **TrueORF Clones:** Tagged open reading frame (ORF) clones in OriGene's CMV based PrecisionShuttle Entry vector. The ORF insert can be easily shuttled with a simple digestion/ligation reaction into a wide variety of tagged destination vectors.

For non-protein coding sequences, OriGene offers

- miRNA expression clones
- shRNA clones (see RNAi brochure or visit www.origene.com/RNAi)
- 3'-UTR reporter clones

Cloning Accessories:

Transfection Reagents

T4 DNA Ligase

HotStart PCR Kit

Mycoplasma Detection

PCR/qPCR Master Mixes

Seamless Cloning Mix

Competent Cells

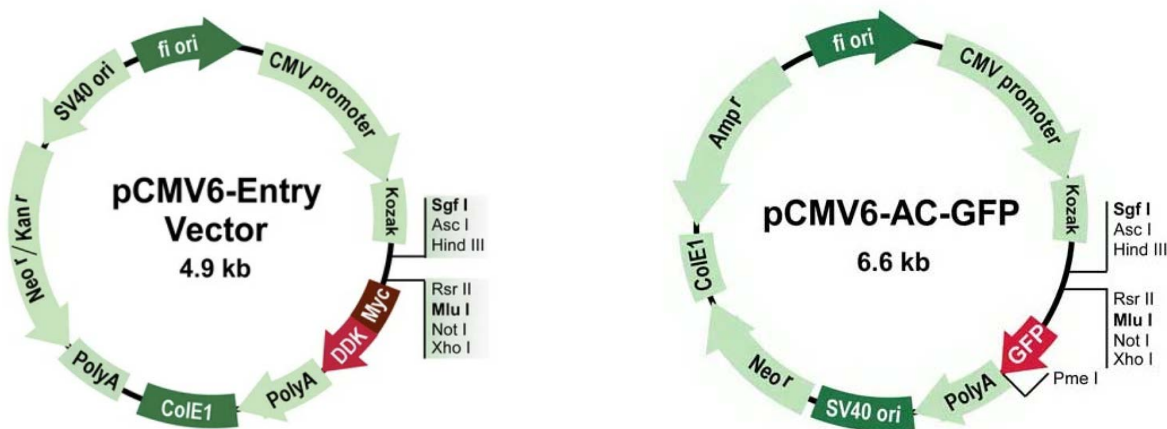
DNA Ladders

Read more about our cDNA clones at
www.origene.com/cdna-clones

Myc-DDK- or GFP-tagged ORF clones for convenient application

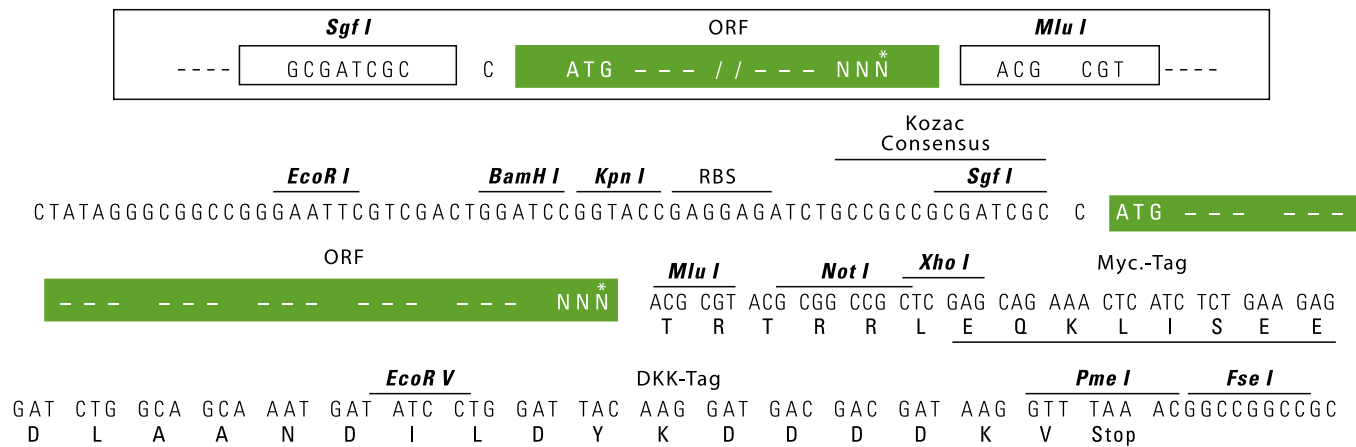
The TrueORF product line is the latest generation of DNA clone products. Unlike TrueClones, TrueORF clones enable expression of the encoded transcript as a tagged protein. This facilitates multiple downstream applications that utilize an anti-tag antibody such as: protein detection, protein purification, subcellular localization, etc.

TrueORF Vectors



All TrueORF inserts are housed in either a pCMV6-Entry or pCMV6-AC-GFP vector. Both vectors allow for easy shuttling by a simple cut-and-paste mechanism into any of the PrecisionShuttle destination vectors. A TrueORF clone expresses the encoded sequence as a Myc-DDK tagged protein or a GFP tagged protein.

DDK is the same as FLAG. FLAG® is a registered trademark of Sigma-Aldrich.

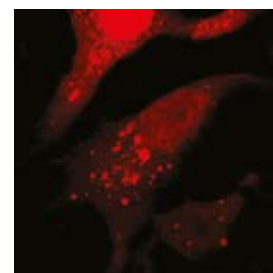


* The last codon before the Stop codon of the ORF

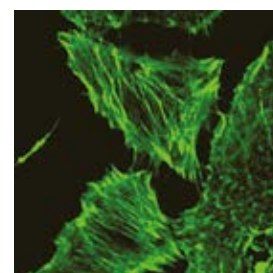
The diagram above is applicable to the majority of human ORFs that do not have internal Sgf I and Mlu I sites. Other rare restriction sites in the MCS are utilized for ORFs with internal sites for the two enzymes.

TrueORFs are excellent for:

- Mammalian overexpression of tagged proteins (over 100 different vectors available)
- Purification of the overexpressed protein
- Protein interaction and localization studies (e.g. organelle markers)
- Detection and cellular imaging of the exogenously introduced protein
- Tagged protein expression in a cell-free system (eg. TNT)



Autophagosome RC100005



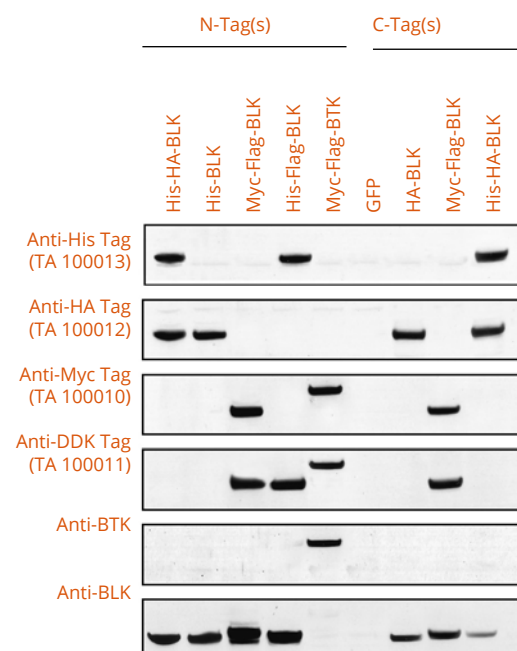
Cytoskeleton RC100002

TrueORF advantages

- **Convenience:** TrueORFs provide an instant solution for tagged protein expression
- **Flexibility:** TrueORF can be shuttled into multiple destination vectors.
- **Accuracy:** TrueORFs have verified and guaranteed insert sequences
- **Proven:** TrueORFs have been rigorously tested for expression of the target proteins and their tags.

Over 15,000 TrueORF clones have passed our protein expression validation.

Find our complete portfolio at www.origene.com/trueorf



Western blot analysis of HEK293 cell lysate over-expressing LK and BTK tagged with indicated epitopes.

PrecisionShuttle System

Tagged protein expression made simple

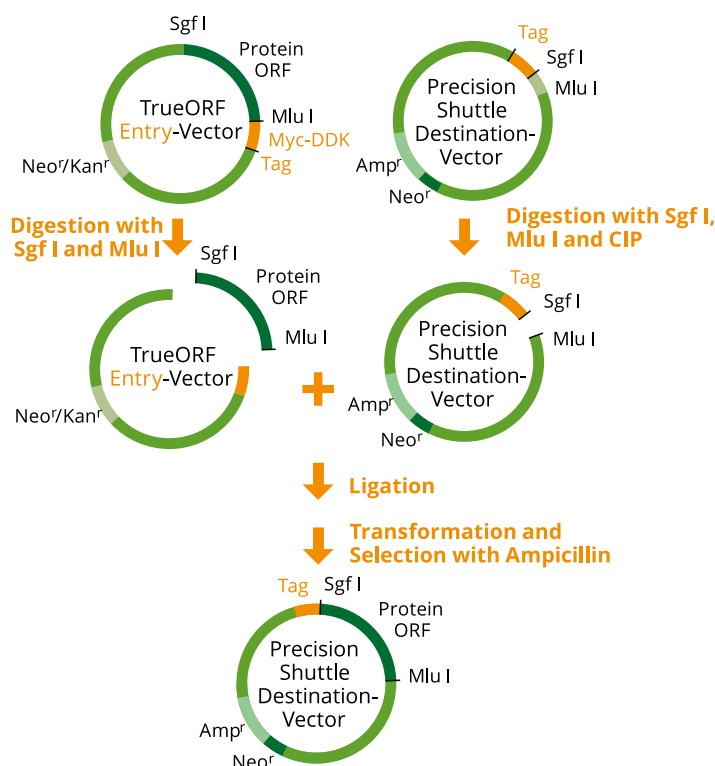
To accommodate diverse tagging needs, OriGene has designed the novel PrecisionShuttle™ system to allow for easy sub-cloning of an ORF from one tagged vector to another. The TrueORF entry vector contains C-terminal tags of Myc and DDK®. A large panel of destination vectors are available so you can express an ORF with different tags as well as different locations of the tag. The key in the PrecisionShuttle system is the utilization of two rare-cutting restriction endonucleases, Sgf I and Mlu I.

PrecisionShuttle vs. Recombination Shuttle System (e.g. Gateway® System):

PrecisionShuttle™	Gateway®
Functional Entry vector	Entry vector NOT for expression
One-step subcloning	Multi-step subcloning
Restriction enzymes-based	Recombination-based
Low cost	Expensive
No IP restriction	Conditional licensing
Inserts>18Kb are readily shuttled	Unstable plasmid when insert>5Kb
2 aa linker appended	>10aa linker appended

Gateway is a registered trademark of Life Technology.

Scheme of the PrecisionShuttle System



PrecisionShuttle™ Vectors - Entry and Destination

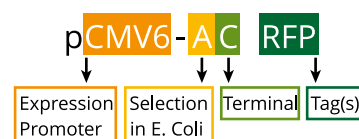
PrecisionShuttle Entry Vector	Cell Selection
pCMV6-Entry (C-terminal Myc and DDK Tagged)	Neomycin

PrecisionShuttle Destination Vector	Mammalian Selection
pCMV6-AC-His	Neomycin
pCMV6-AC-Myc	Neomycin
pCMV6-AC-HA	Neomycin
pCMV6-AC-DDK	Neomycin
pCMV6-AC-Myc-His	Neomycin
pCMV6-AC-Myc-DDK	Neomycin
pCMV6-AC-HA-His	Neomycin
pCMV6-AC-DDK-His	Neomycin
pCMV6-AC-GFP	Neomycin
pCMV6-AN-His	Neomycin
pCMV6-AN-Myc	Neomycin
pCMV6-AN-HA	Neomycin
pCMV6-AN-DDK	Neomycin
pCMV6-AN-His-Myc	Neomycin
pCMV6-AN-Myc-DDK	Neomycin
pCMV6-AN-His-HA	Neomycin
pCMV6-AN-His-DDK	Neomycin
pCMV6-AN-GFP	Neomycin
pCMV6-AC	Neomycin
pTUNE Inducible	Neomycin
pCMV6-A-BSD	Blasticidin
pCMV6-A-EM7-BSD	Blasticidin
pCMV6-A-Hygro	Hygromycin
pCMV6-A-Puro	Puromycin
pCMV6-A-GFP	—
pCMV6-AC-IRES-GFP	Neomycin
pEX-N-His-GST	—
pEX-N-GST	—
pEX-N-His	—
pEX-C-His	—
pEX-1	—
pCMV6-AN-RFP	Neomycin
pCMV6-AC-RFP	Neomycin
pCMV6-AN-YFP	Neomycin

pCMV6-AC-YFP	Neomycin
pCMV6-AC-FP602	Neomycin
pCMV6-AC-FP635	Neomycin
pCMV6-AC-mKate	Neomycin
pCMV6-AC-mGFP	Neomycin
pCMV6-AC-mRFP	Neomycin
pCMV6-AC-mYFP	Neomycin
pCMV6-AC-mBFP	Neomycin
pCMV6-AC-mCFP	Neomycin
pCMV6-AN-FP602	Neomycin
pCMV6-AN-FP635	Neomycin
pCMV6-AN-mKate	Neomycin
pCMV6-AN-mGFP	Neomycin
pCMV6-AN-mRFP	Neomycin
pCMV6-AN-mYFP	Neomycin
pCMV6-AN-mBFP	Neomycin
pCMV6-AN-mCFP	Neomycin
pCMV6-AC-FC	Neomycin
pCMV6-AC-FC-S	Neomycin
pCMV6-AN-FC	Neomycin
pCMV6-AN-FC-S	Neomycin
pCMV6-AC-3DDK	Neomycin
pCMV6-AN-3DDK	Neomycin
pCMV6-AC-IRES-GFP-Puro	Puromycin
pTUNE-GFP	Neomycin
pCMV6-AN-GFP-C-His	Neomycin

This list only contains a small portion of the vectors we have available. For a more comprehensive list, visit www.origene.com/orf-cloning-vectors.

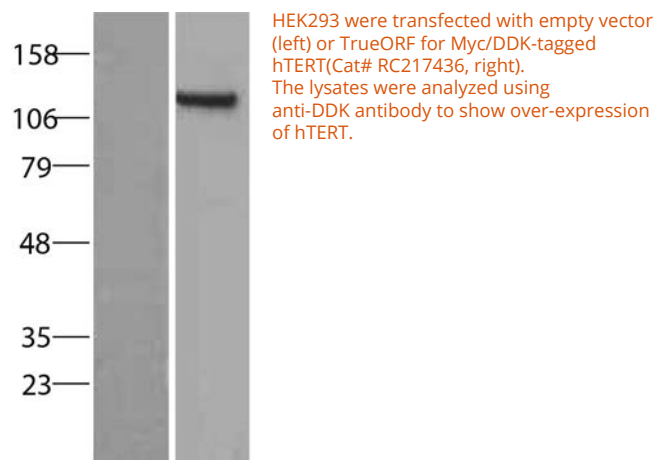
Understand a Vector by its name



TrueORF Gold Clones - Expression-validated cDNA Clones

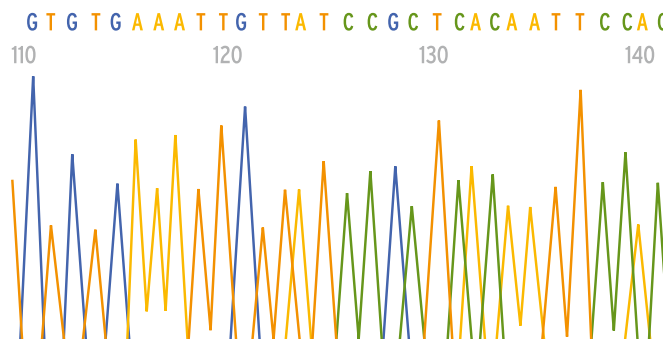
Tested individually by Western Blot

Each TrueORF Gold clone has been used to transfect human cell lines for protein expression. OriGene has produced over 15,000 over-expression lysates from TrueORF transfected HEK293 cells and subsequently purified over 6,000 human proteins.



Sequence verified

Each TrueORF Gold clone's sequence information is online, downloadable as chromatogram files. No more worrying about mutations, deletions, or frameshift when using TrueORF Gold.



Transfection ready

No need for subcloning, no need for plasmid preparation; TrueORF Gold clones are expression ready and supplied as 10ug transfection-ready DNA.

Easily shuttled into over 100 vectors

OriGene has prepared over 100 destination vectors with matching cloning sites allowing for easy transfer of the insert using a simple cut and paste procedure.

- Fluorescent-protein tagging vectors
- Epitope-tagging vectors
- Bacterial expression vectors
- Selection markers
- Viral vectors

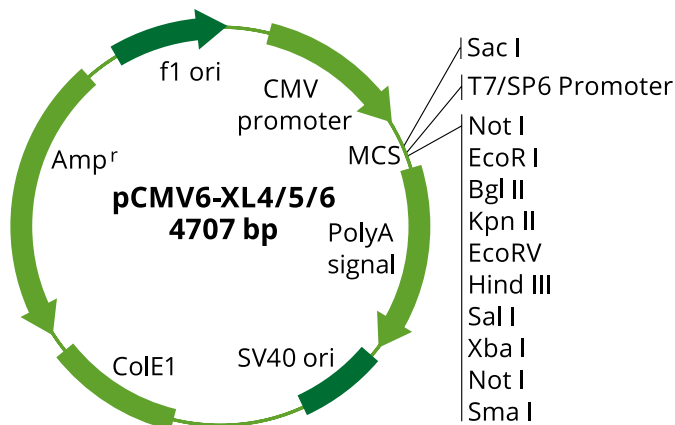
NEXT-DAY SHIPMENT

See all available TrueORF Gold clones at www.origene.com/trueorf-gold

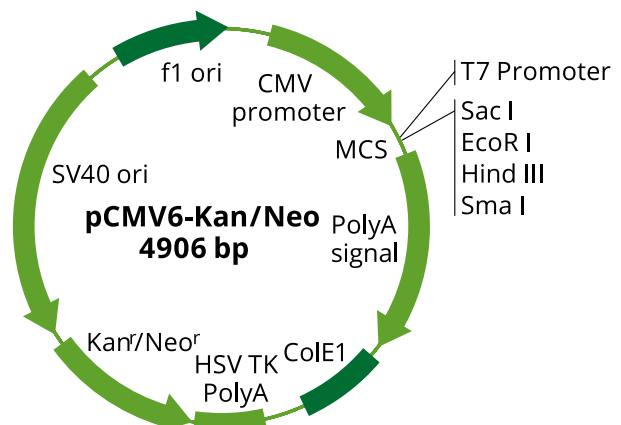


Authentic full-length cDNA clones for expression and functional studies of a native protein

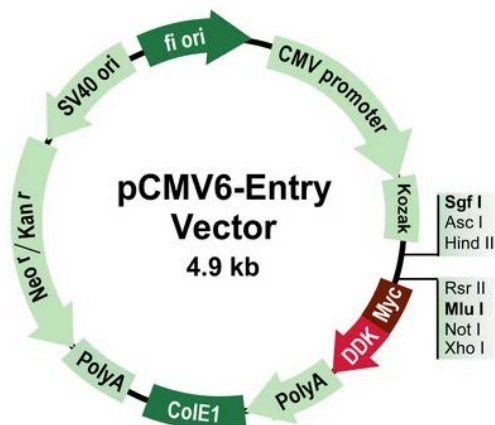
OriGene's TrueClones cover human, mouse, and rat genomes. The vectors for the three species differ slightly.



All TrueClones are unidirectionally cloned in the EcoR I and Sal I restriction sites. The Sal I site is destroyed during cloning, and cannot be reused. The insert can be liberated by a simple digestion with Not I.



All mouse TrueClones are cloned unidirectionally between two sites in the MCS. Please contact OriGene's technical support professionals for details.



All rat TrueClones are cloned in OriGene's pCMV6-Entry Vectors. Please contact OriGene's technical support professionals for details.

TrueClones are excellent for:

- Overexpression of the native protein in mammalian cells
- Functional studies of native protein
- Quantitative PCR templates
- Hybridization-based detection probes, such as Northern blots or FISH assays
- Protein expression in cell-free systems (eg. TNT)

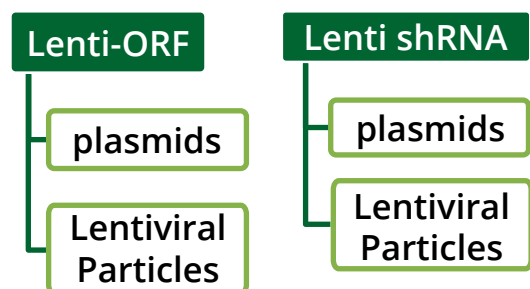
TrueClone advantages:

- Cost-effective and time-saving alternative to de novo cloning
- Expression-ready and transfection-ready
- Authentic cDNAs representing native transcripts
- Consistent vector system facilitates high-throughput screening

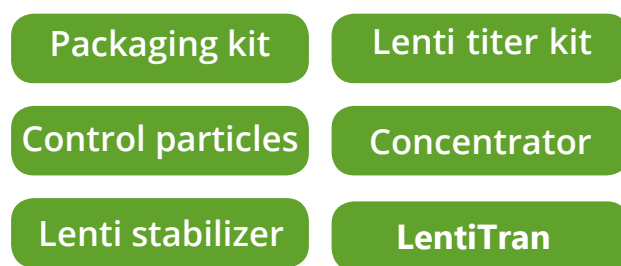
Lentivirus is a powerful gene delivery tool, high transduction efficiency. Lentiviral system can be used for both gene overexpression and gene knockdown (shRNA).

- **High efficiency:** Up to 100% transduction
- **Broad spectrum:** Dividing & non-dividing
- **Biosafety:** 3rd generation, safest
- **Coverage:** Genome-wide offering (human, mouse, and rat)

Lentiviral Products:

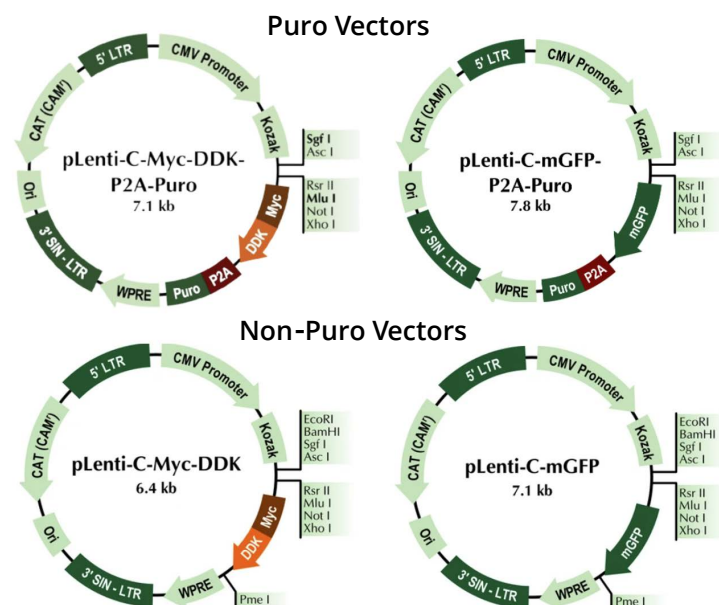


Lenti accessories:

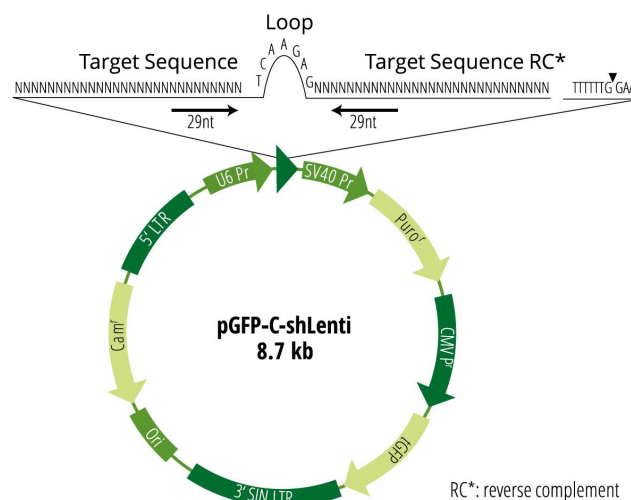


Lenti-ORF clones, 4 vector options

The same ORF is offered in 4 lenti vectors



Lenti shRNAs



Three major functional elements

- shRNA under U6 promoter
- Puro selection marker
- GFP as a reporter

More lentiviral destination vectors:
www.origene.com/products/cdna-clones/lentiviral-particles/lenti-vectors

What is special about OriGene's Ready-to-use Lentiviral Particles

- Pre-titered, ready-to-use
- Transduction units, not physical titer, $>10^7$ TU/mL
- Longer storage, provided in the proprietary Lentiviral stabilizer solution, >1 year infectivity

Ready-to-use lentiviral particles vs lenti plasmids



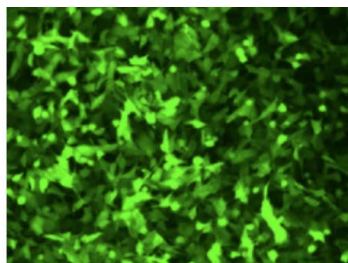
Ready-to-use particles



Lenti plasmids

Highly effective Lenti packaging kit

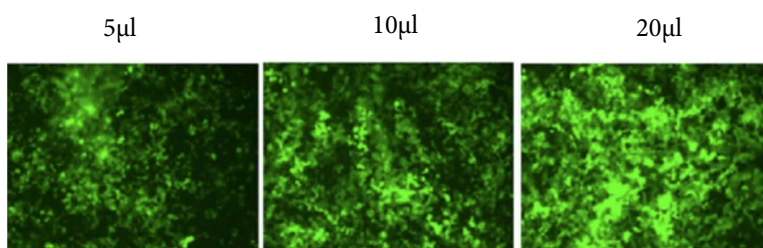
- High efficiency
- Package the 3rd generation lenti vectors
- Transfection reagent included
- Cat # TR30037 & TR30037P5



Transduced HT1080 cells with lenti GFP virus produced with OriGene's Lenti-vpak kit

Control Particles (expressing GFP or RFP)

- Quantify transduction efficiency
- The control particles can be used to optimize transduction
- Serve as negative control



HEK293 cells were transduced by different volumes of TR30021V (Lenti control particles). Fluorescence pictures taken 72 hrs after infection.

Pathway-focused cDNA Clone Sets

For researchers who wish to obtain an entire gene family or a pathway-focused cDNA clone collection, OriGene offers pre-made clone sets. Clone sets are ideal for high throughput screening or archiving. OriGene discounts the order considerably according to the number of clones in the set ordered.

Pre-made Human Clone Sets

Each pre-made clone set contains 90 cDNA clones in mammalian expression vectors

Cat #	Description	Price (subjected to change)
TCTM101	Transmembrane clone set I	\$ 1200
TCTF101	Transcription factors clone set I	\$ 1200
TCPK101	Protein kinases clone set I	\$ 1200
TCGR101	GPCR clone set I	\$ 1200
TCSP101	Secreted gene clone set I	\$ 1200

Clone Sets for Customized Assembly

OriGene's website lists over 100 commonly studied pathways, gene families and research focuses so that the customer can assemble their own clone collection of interest with ease. We will work with you to make your own custom set — contact us at sales@origene.com.

Sample collections

Clone Sets	TrueORF (Myc-DDK Tagged)	TrueClone (Untagged)
GPCR	269	376
Kinase-deficient mutant	N/A	337
Protein Kinase	422	973
Secreted	1087	1259
Transmembrane	3309	4372
Angiogenesis	341	534

Clone Sets	TrueORF (Myc-DDK Tagged)	TrueClone (Untagged)
Apoptosis	1498	2315
Breast Cancer	319	507
Cytokines	203	241
Human Stem Cell	246	339
Human Tumor Metastasis	94	154
Notch	92	144
Wnt Pathway	287	386

Find more information on our clone sets on www.origene.com/clone-set

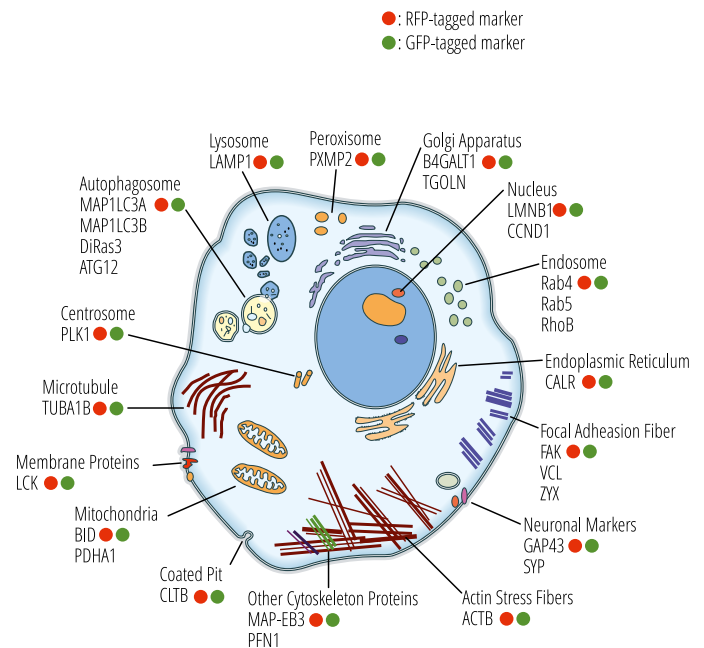
Label subcellular structures with a simple transfection

Product Description

- GFP- or RFP-tagged human cDNA clones for organelle-specific marking
- Individually validated by confocal microscopy for correct labeling
- Enable labeling of live or fixed cells without chemical or antibodies

Applications

- Direct organelle marking
- Monitoring of protein trafficking
- Study organelle morphology and dynamics
- Protein co-localization with organelles
- Fraction tracking during enrichment or purification



\$612 each, provided as 10ug purified transfection-ready plasmids

Cat#	Organelle	Symbol
RC100004(G)/RC100036(R)	Autophagosome	ATG12
RC100011(G)/RC100043(R)	Autophagosome	Di-Ras3
RC100020(G)/RC100052(R)	Autophagosome	MAP1LC3A
RC100021(G)/RC100053(R)	Autophagosome	MAP1LC3B
RC100023(G)/RC100055(R)	Centrosome	PLK1
RC100010(G)/RC100042(R)	Coated pit	CLTB
RC100002(G)/RC100034(R)	Cytoskeleton	ACTB
RC100019(G)/RC100051(R)	Cytoskeleton	MAP-EB3
RC100022(G)/RC100054(R)	Cytoskeleton	PFN1
RC100030(G)/RC100062(R)	Cytoskeleton	TUBA1B
RC100008(G)/RC100040(R)	Endoplasmic reticulum	CALR
RC100025(G)/RC100057(R)	Endosome	Rab4
RC100026(G)/RC100058(R)	Endosome	Rab5
RC100027(G)/RC100059(R)	Endosome	RhoB

Cat#	Organelle	Symbol
RC100012(G)/RC100044(R)	Focal adherin fiber	FAK
RC100031(G)/RC100063(R)	Focal adherin fiber	VCL
RC100032(G)/RC100064(R)	Focal adherin fiber	ZYX
RC100005(G)/RC100037(R)	Golgi apparatus	B4GalT1
RC100029(G)/RC100061(R)	Golgi apparatus	TGOLN
RC100016(G)/RC100048(R)	Lysosome	LAMP1
RC100006(G)/RC100038(R)	Mitochondria	PDHA1
RC100007(G)/RC100039(R)	Mitochondria	BID
RC100013(G)/RC100045(R)	Neuronal axis	GAP43
RC100009(G)/RC100041(R)	Nucleus	CCND1
RC100018(G)/RC100050(R)	Nucleus	LMNB1
RC100024(G)/RC100056(R)	Peroxisome	PXMP2
RC100017(G)/RC100049(R)	Plasma membrane	LCK
RC100028(G)/RC100060(R)	Synaptic vesicles	SYP

microRNA Expression Plasmids

Comprehensive coverage for human, mouse, and rat genomes

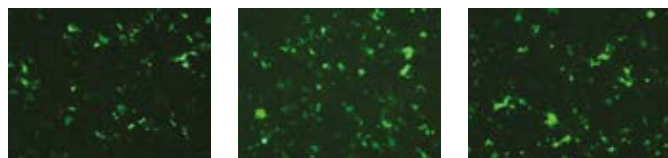
OriGene provides clones for over-expression of the microRNA (miRNA) of your choice. OriGene's miRNA precursor contains pre-miRNA (60-70nt) with 250-300 nts up- and down-stream of the flanking sequence. It is amplified from human genomic DNA and cloned into OriGene's pCMV6-Mir Vector. Upon transfection, the cellular machinery will process the CMV-driven expression of miRNA precursor into mature miRNA and cellular function can be analyzed.

Features & Benefits

- Genome wide miRNA coverage — 1829 human, 1160 mouse, and 436 rat
 - Sequence confirmation of the precursor miRNA
 - GFP for transfection monitoring
 - Neomycin selection for stable cell establishment
- GFP transfection of microRNA expression plasmids in HEK293 cells

Read more about miRNA at www.origene.com/microRNA

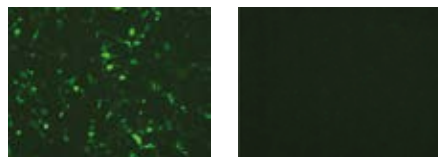
GFP transfection of miRNA expression plasmids in HEK293 cells



Mir205

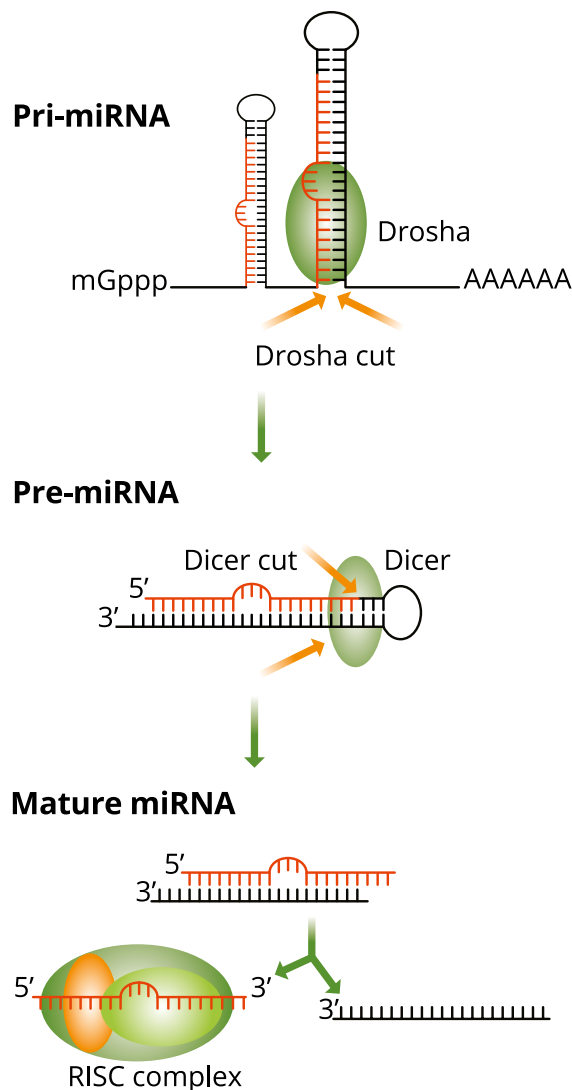
Mir143

Mir34b



Empty Vector

Non-transfected



miRNA expression plasmids

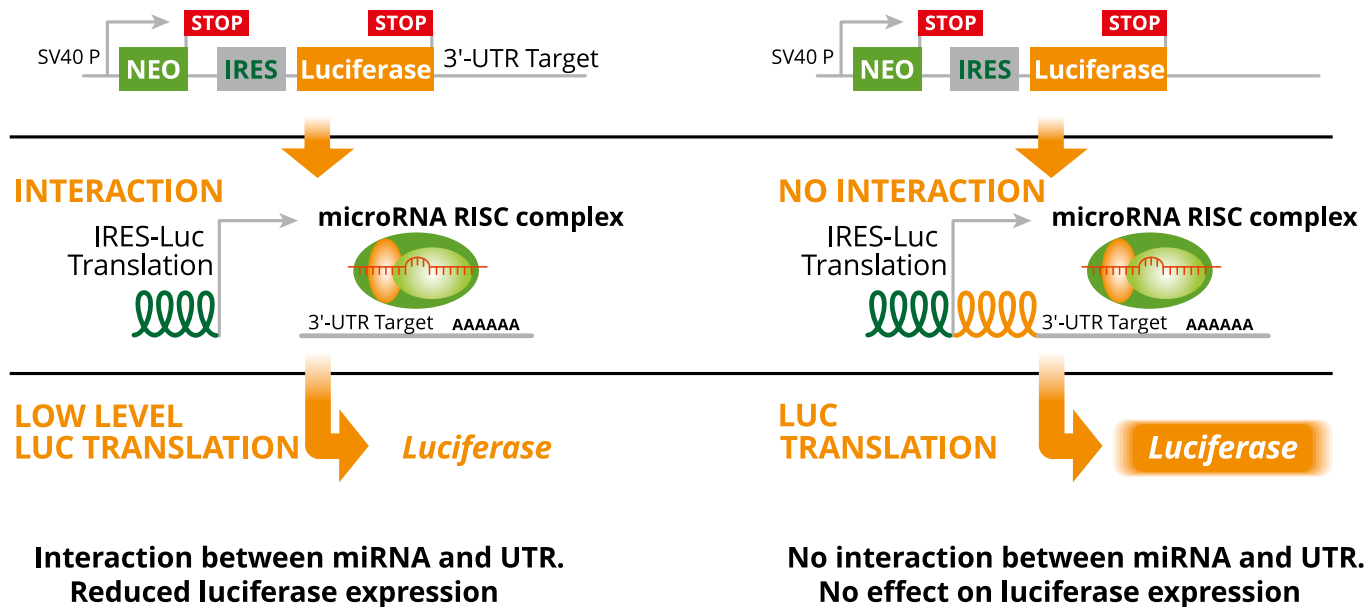
Sold individually as 10ug transfection-ready DNA or can be purchased as following sets

Catalog No.	Description
SC410001	Mouse miRNA expression plasmid set (486 vectors, 10ug each in 2-D bar coded tubes)
SC420001	Human miRNA expression plasmid set (652 vectors, 10ug each in 2-D bar coded tubes)
SC410002	Mouse miRNA expression plasmid set (486 vectors, 2ug each in 96-well plates)
SC420002	Human miRNA expression plasmid set (652 vectors, 2ug each in 96-well plates)

3'-UTR Reporter Clones for miRNA Target Validation

Luciferase reporter assays for the human genome

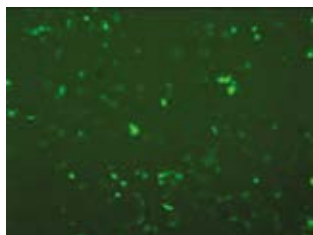
The 3' UTR plasmids provide a convenient solution for quantitative assessment of the inhibitory effect between miRNAs and their potential gene targets. OriGene's 3' UTR clones were designed by cloning the 3' UTR sequence of a gene of interest, downstream of the firefly luciferase gene. The chimeric transcript level is then regulated by its interaction with miRNA(s), which results in varied luciferase activity quantifiable by a colorimetric assay.



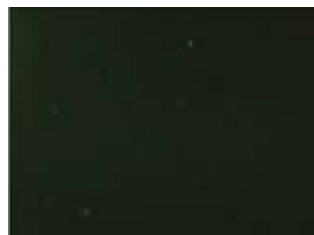
Features & Benefits

- Genome wide coverage (>20,000 human genes)
- Firefly luciferase as the easy-to-assay reporter
- RFP for transfection monitoring
- High sensitivity from IRES-driven translation of the expression cassette

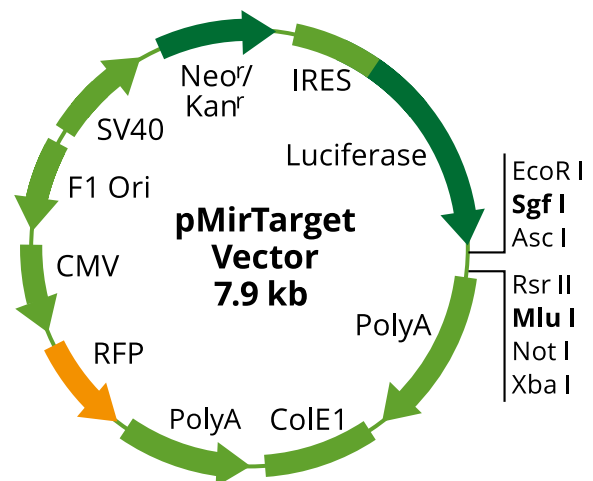
Find out more at
www.origene.com/3-utr-clones



pCMV - Mir + Mir205 target



pCMV - Mir205 + Mir205 target



OriGene has used a new design adapted from C.P.Petersen et al. 2006, to dramatically increase the sensitivity of detection by decreasing the 3'UTR-luciferase reporter expression to a very low level.

OriGene, Your Partner in Research, Diagnostics and Beyond

- cDNA Clones/Lenti & AAV Particles
- CRISPR/Cas9/sgRNA
- Expression Vectors
- Recombinant Proteins
- Antibodies
- RNAi
- Normal & Cancer Tissues



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