



# **Functional Tags For ORF Clones For Your Research**

## **GeneCopoeia, Inc.**

**Presenter:**

**Ed Davis, Ph.D.  
Senior Application Scientist  
GeneCopoeia, Inc.**



# Goals of this presentation

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- How to use expression-ready ORF clones in research
- How to choose tagged clones
- How to order expression-ready ORF clones from GeneCopoeia



# Outline

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- Introduction to GeneCopoeia
- OmicsLink™ Expression-ready clones
- Applications for ORF clones
- How to order GeneCopoeia ORF clones



# Outline

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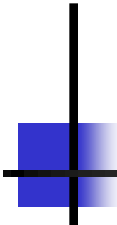
- Introduction to GeneCopoeia
- OmicsLink™ Expression-ready clones
- Applications for ORF clones
- How to order GeneCopoeia ORF clones



# What do we do?

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- Original manufacturer and seller of a variety of research reagents and tools.
- Biological research service provider to world-wide customers.



# Products for Functional Genomics

Products & Services	Genome editing	Transcription regulation	Translation regulation	Gene Profiling
ORF clones			Overexpression	
Promoter clones		Promoter activity analysis		
miRNA target clones			miRNA target validation	
miRNA inhibitor clones			Expression regulation	
Precursor miRNA clones			Expression regulation	
shRNA clones			Expression knockdown	
TALENs	Gene knockout, knock-in, mutagenesis			
CRISPR-Cas9	Gene knockout, knock-in, mutagenesis			
TALE-TFs		Transcription activation		
TALEN-mediated knockin	Gene knock-in			
qPCR Arrays				Pathway- and disease focused gene analysis



# Outline

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- Introduction to GeneCopoeia
- **OmicsLink™ Expression-ready clones**
- Applications for ORF clones
- How to order GeneCopoeia ORF clones

# Post-genomics era functional studies

## Human Genome Project

DNA



Post-Human Genome Project:  
ORFs and Expression Regulation

mRNA



Reverse Transcription



Protein







# Why Use ORF clones?

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- Biochemical studies *in vitro*
  - Macromolecular interactions (protein-protein, protein-DNA, etc.)
- Biological function studies *in vivo*
- Orthologous studies
- Reverse/rescue mutant phenotype
- Drug target validation



# GeneCopoeia Full-length ORF clones

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- Only company with genome-wide untagged ORF clones
- Choice of numerous functional tags
- All ORFs sequence-verified & guaranteed

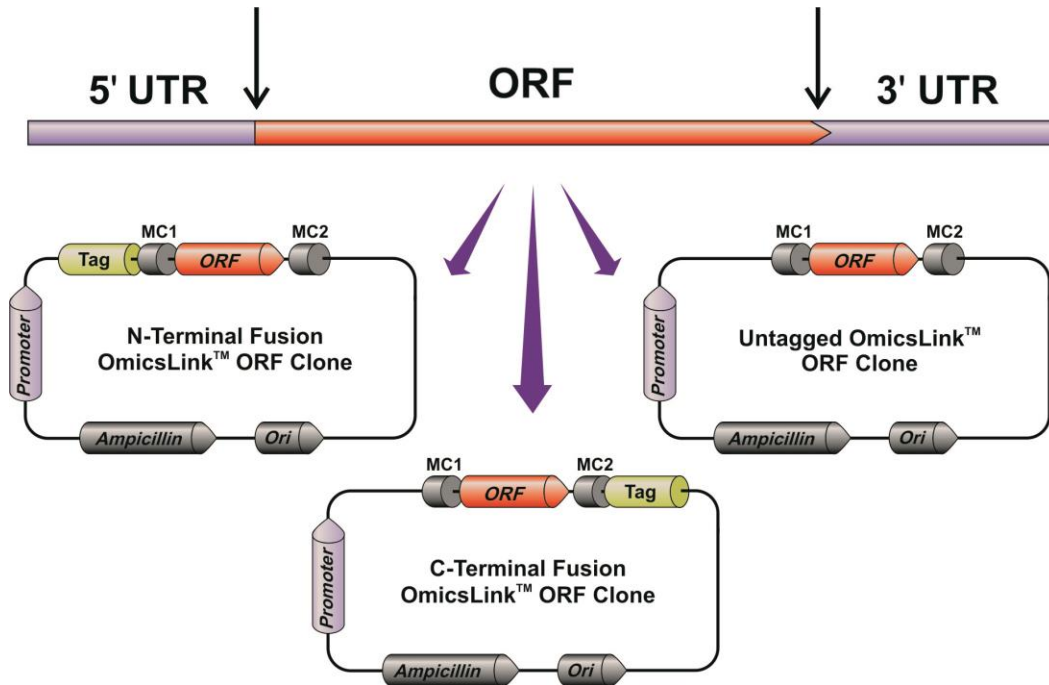


# Sequence- vs. expression validation

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- Sequence validation: Confirm that sequence is correct, untagged protein will have natural function
- Expression validation, tagged or untagged: Could be expressing protein that is non-functional or has acquired non-physiological function

# OmicsLink™ Expression-ready clones



## Advantages

- Ready for immediate in vivo and in vitro expression
- No cloning steps required
- Full-length ORFs without 5' or 3' UTRs
- >45,000 human & mouse ORFs
- Available for human, mouse, & zebrafish
- Available in lentiviral or non-viral vectors



# OmicLink™ Expression-ready clones

## Applications & advantages

- High-throughput and large scale protein production and purification
- Ready for various functional assays, including protein immobilization, cellular localization, and other functional assays
- Suitable for reverse transfection arrays and nucleic acid programmable protein arrays (NAPPA)
- Resources and time savings



# ORF Clone Collections

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- Human ORFs
  - 21,000+ ORFs
  - Fully sequenced
- Mouse ORFs
  - ~15,000 genes
  - ~13,000 unique genes
- ORFs from other species
  - Zebrafish
  - etc

# Promoters and Fusion Tags in Expression Systems

## Promoters:

- CMV
- EFa1
- Lenti/CMV/EFa1
- T7
- Trac
- GAL1
- AcMNPV polyhedrin

## Fusion Tags:

- Hisx6
- Flag/3xFlag
- GST
- MBP
- SUMO
- GFP, YFP, RFP
- 3xHA
- c-Myc
- Halo-Tag®
- AviTag™
- AviTag-IRES-Biotin Ligase
- Luciferase, **secreted** and non-secreted

## Mammalian Selection Markers:

- Puromycin
- Neomycin
- Hygromycin
- Blasticidin
- Zeomycin



# Clone Sets: Genome-wide or families

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- CMV based mammalian expression ready clone sets
  - Untagged: No potential for tag effects
  - C-terminal Flag
  - C-terminal monomeric EGFP
- Lentiviral + CMV expression ready clone sets
  - Untagged: No potential for tag effects
  - C-terminal V5





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# Using untagged ORF clones

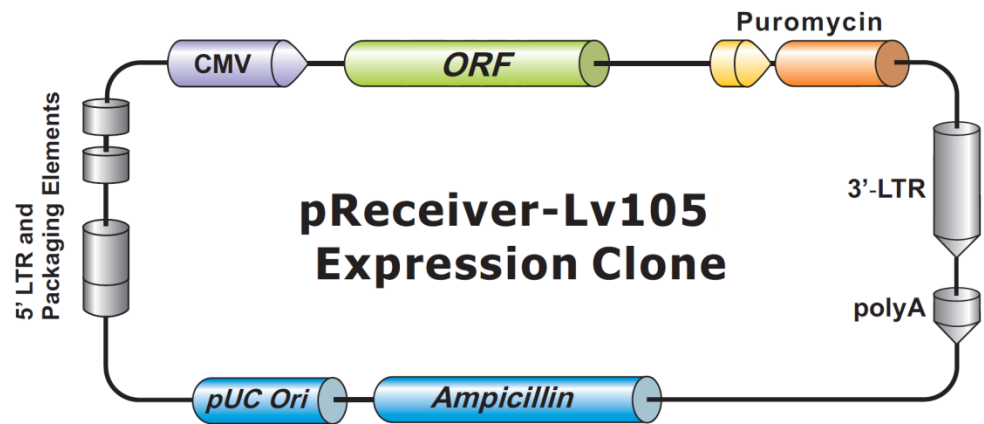
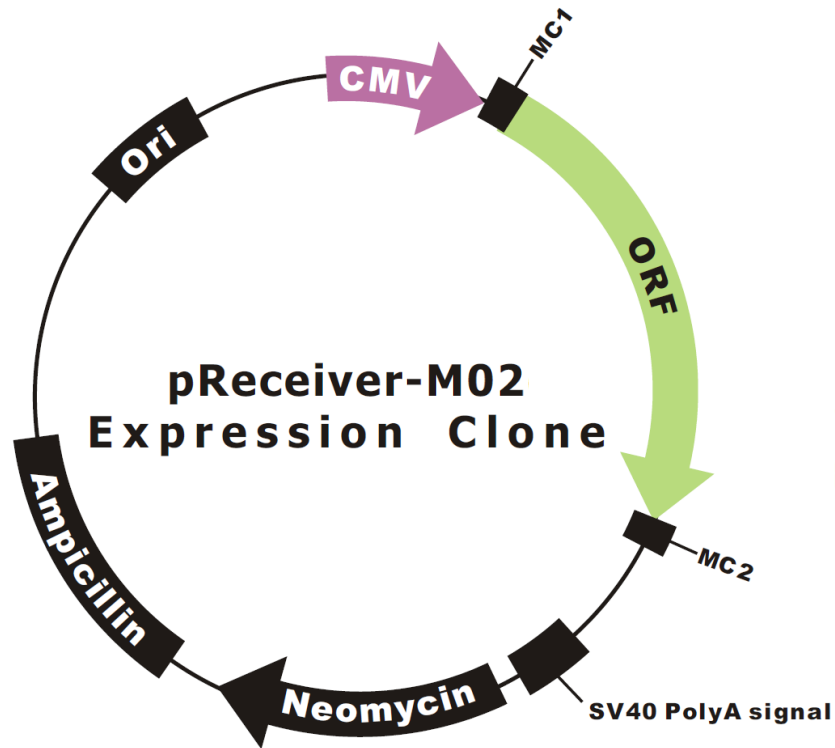
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## Why choose to NOT tag?

- Tag could interfere with normal protein folding
- Tag could interfere with normal protein activity
- Tag could interfere with normal protein localization
- Tag could create toxic fusion protein
- Have native antibody available, tag not needed

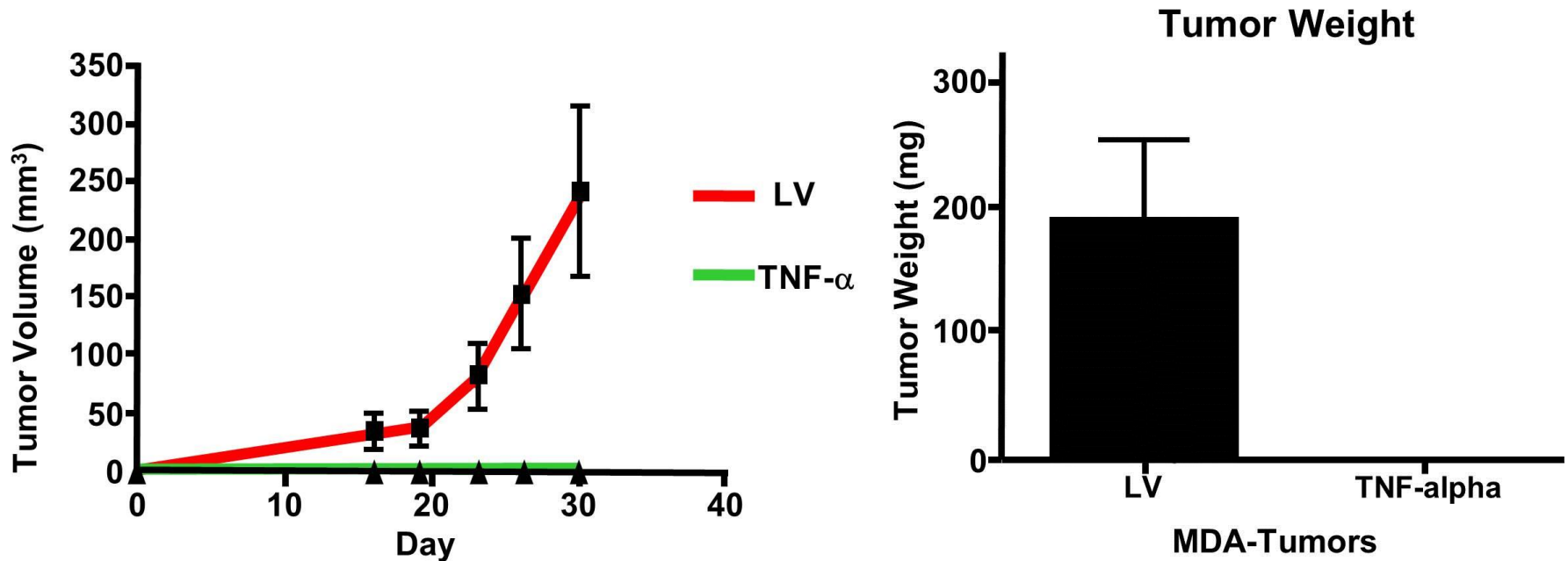
# Using untagged ORF clones

## GeneCopoeia untagged expression vectors



# Using untagged ORF clones

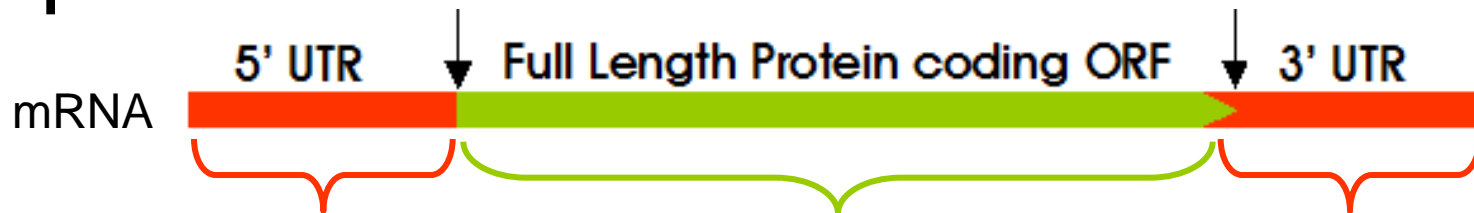
Express native protein for phenotype



Al-Zoubi, et al. (2013). Cell Cycle 12, 480

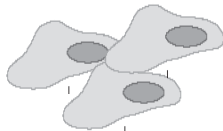
Used GeneCopoeia OmicsLink™ clone to demonstrate that TNFα overexpression eliminates breast cancer growth in vivo

# Application Example: Validation of RNAi Silencing

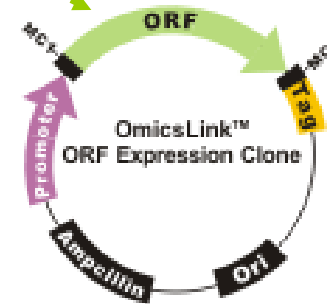


dsRNA or shRNA  
against UTRs

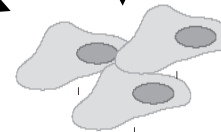
Transfect cells



Silence GENE function



Co-Transfect cells



No effect, function  
rescue/recovery?



# Why use tags?

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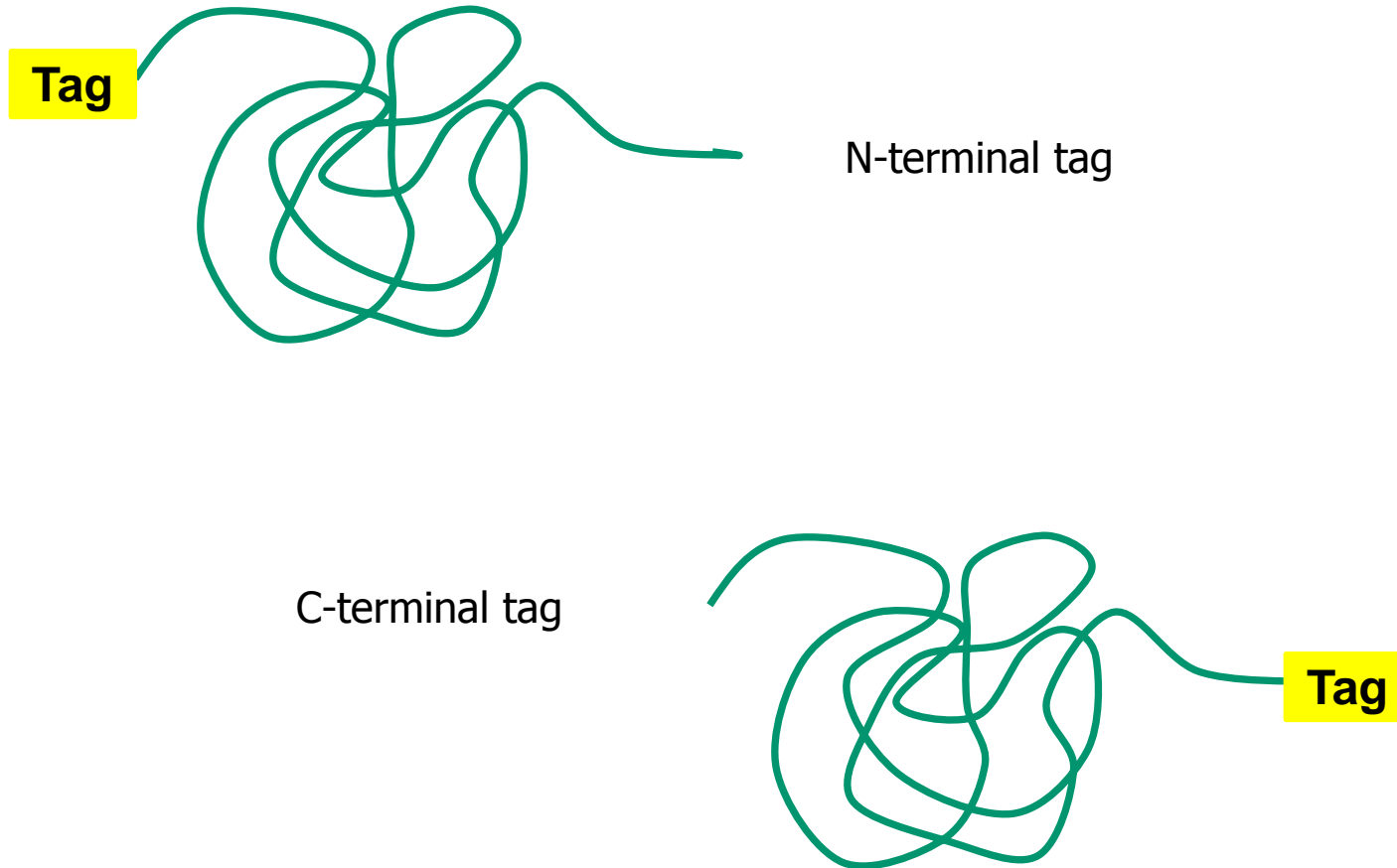
- No native antibody available
- Enable purification
- Enhance solubility during purification
- Interaction with macromolecules
- Localization/live cell visualization

# Applications and Advantages of Various Fusion Tags

<b>Fusion Tag</b>	<b>Purification</b>	<b>Increase Solubility</b>	<b>ab IP</b>	<b>Cellular Labeling</b>
<b>His6</b>	<b>+</b>	<b>+/-</b>	<b>+/-</b>	
<b>Flag</b>	<b>+</b>	<b>+/-</b>	<b>+</b>	
<b>GST</b>	<b>+</b>	<b>+</b>	<b>+</b>	
<b>MBP</b>	<b>+</b>	<b>++</b>	<b>+</b>	
<b>His-MBP</b>	<b>++</b>	<b>+</b>	<b>+</b>	
<b>HA</b>			<b>+</b>	
<b>GFP</b>				<b>+++</b>
<b>cMyc</b>			<b>+</b>	
<b>His-cMyc</b>	<b>+</b>		<b>+</b>	
<b>His-AviTag</b>	<b>++</b>		<b>++</b>	<b>++</b>
<b>Sumo</b>		<b>+++</b>	<b>+</b>	
<b>His-Sumo</b>	<b>++</b>	<b>++</b>	<b>+</b>	

# Applications for tagged ORF clones

## Protein tagging for purification







# How to choose tagged ORF clones

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## Considerations for choosing N- or C-terminus

- Choose end that is not buried in protein core
- Choose end that does not disrupt localization (signal peptide)

# Applications for tagged ORF clones

## Protein purification

### His tag



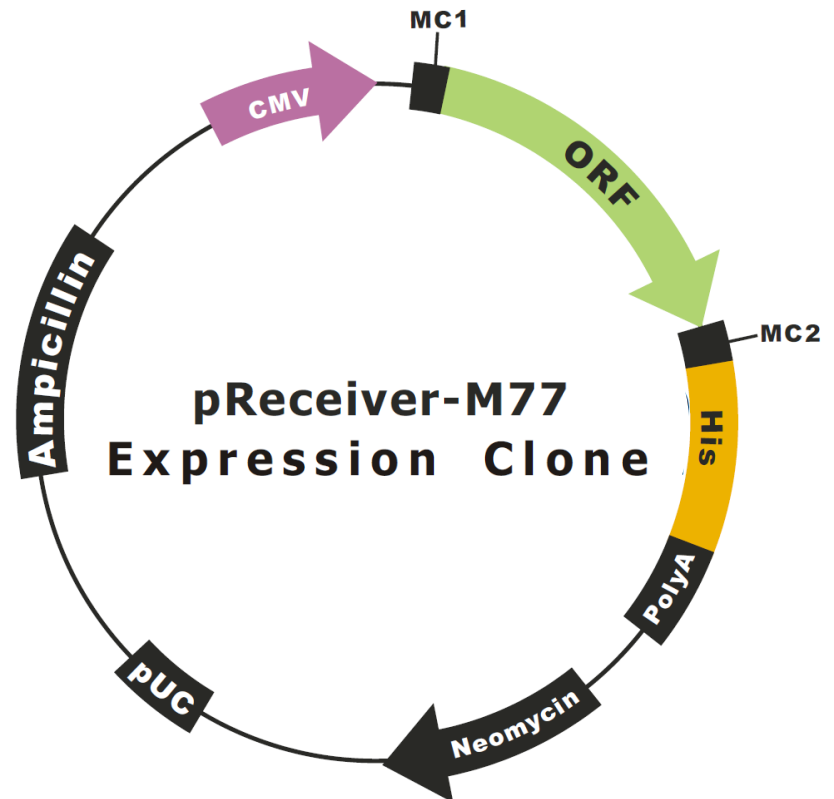
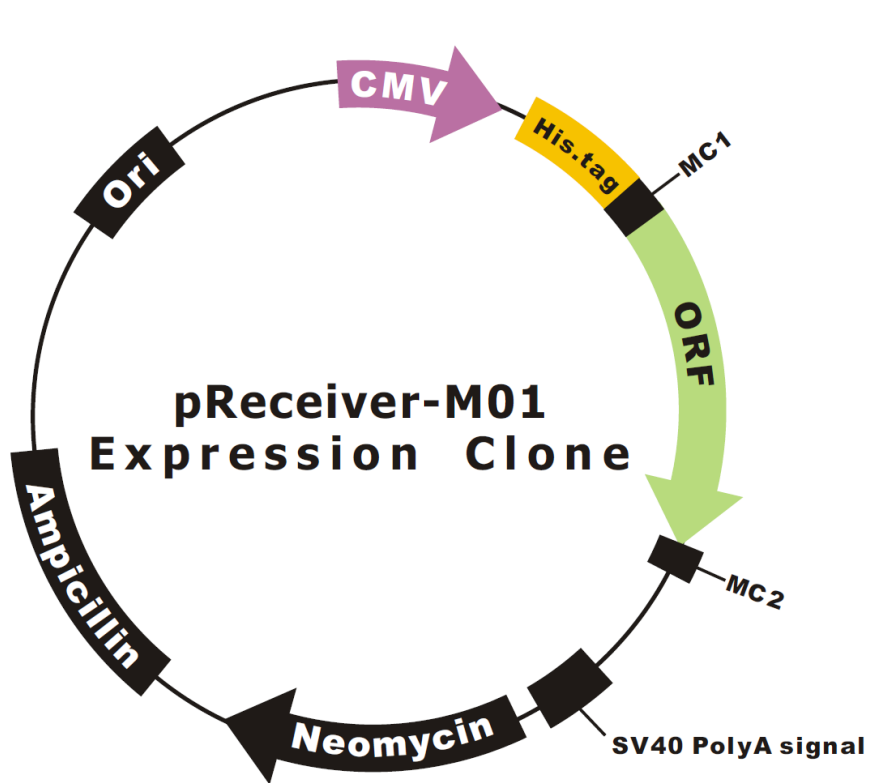
## Features

- 6xHis tag permits use of classic metal columns or beads for purification
- Can be fused at N- or C-terminus

# Applications for tagged ORF clones

## Protein purification

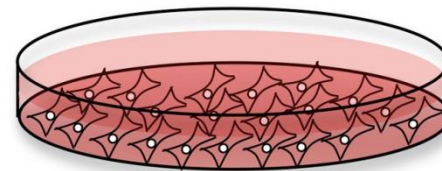
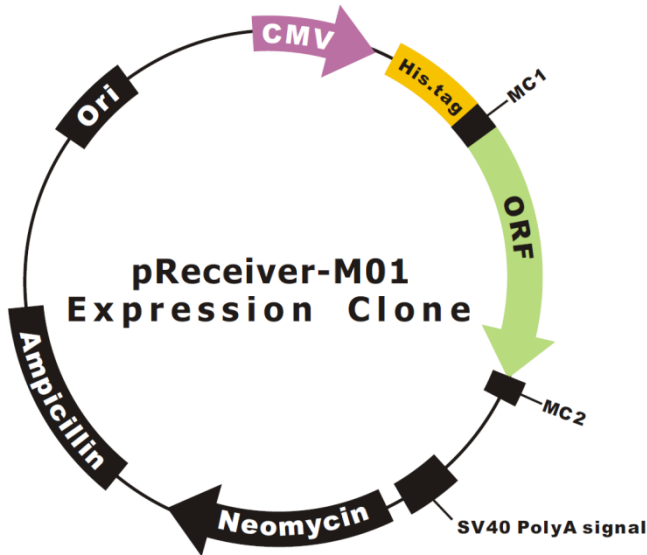
### His tag



# Applications for tagged ORF clones

## Protein purification

His tag



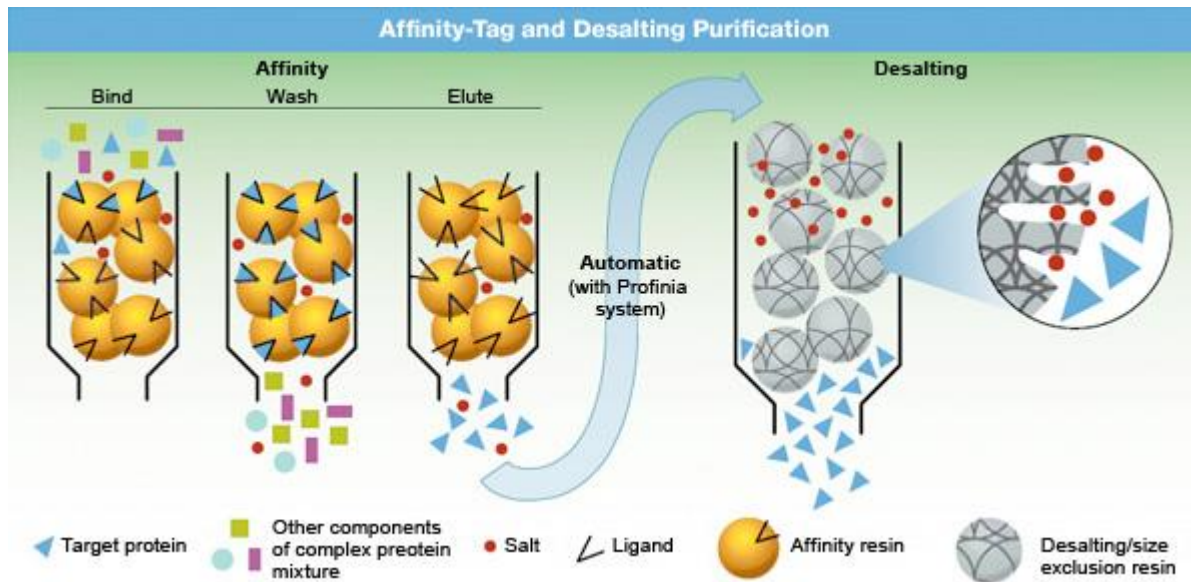
- Mammalian cells
- Bacteria
- Cell-free
- Insect cells
- Etc.

**Isolate proteins**

# Applications for tagged ORF clones

## Protein purification

### His tag



Affinity purification—typically column or beads (agarose or magnetic)

# Applications for tagged ORF clones

## Protein purification

### Flag tag



DYKDDDDK



DYKDDDDK

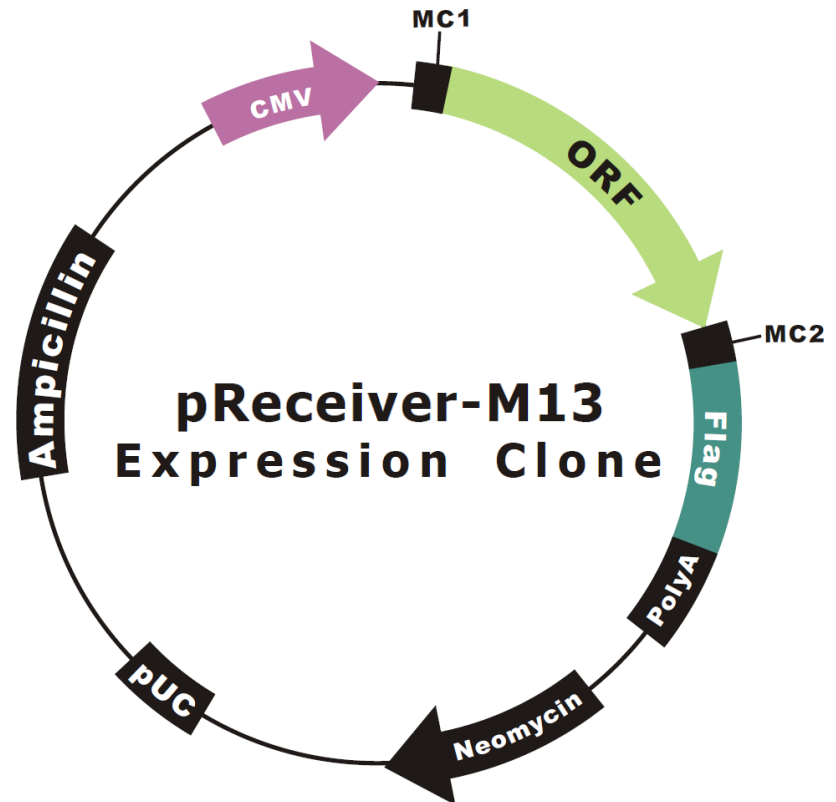
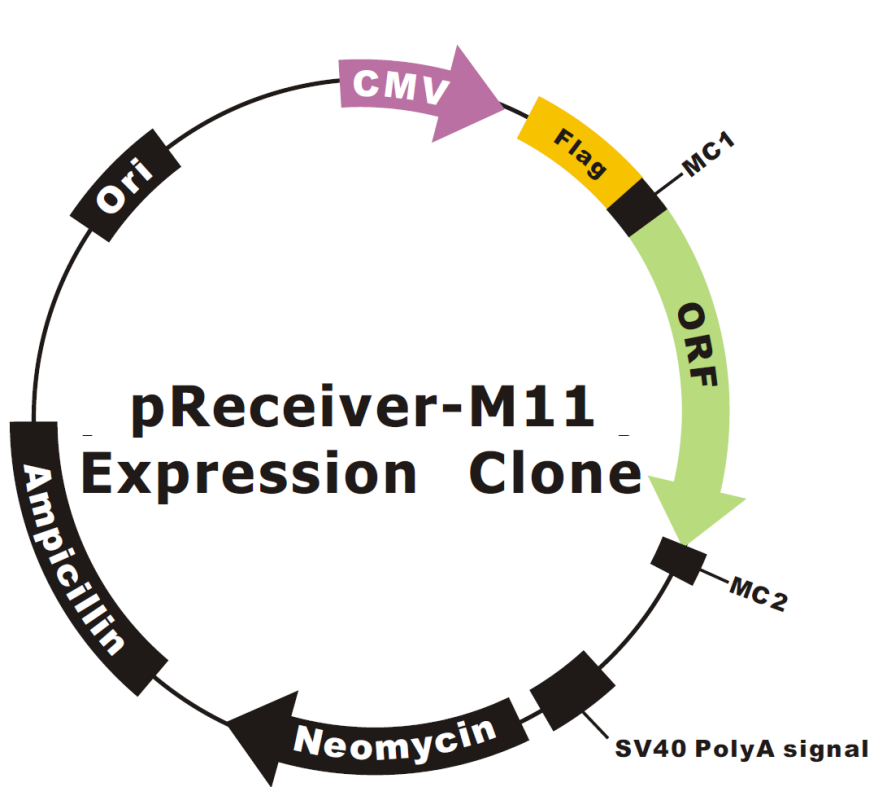
## Features

- Small tag less likely to interfere with protein function
- Multiple applications: Purification, western, IP, IF
- Can place at N- or C-terminus

# Applications for tagged ORF clones

## Protein purification

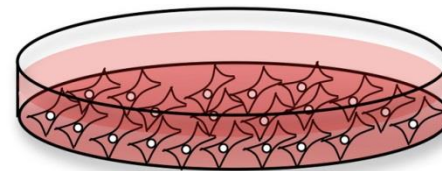
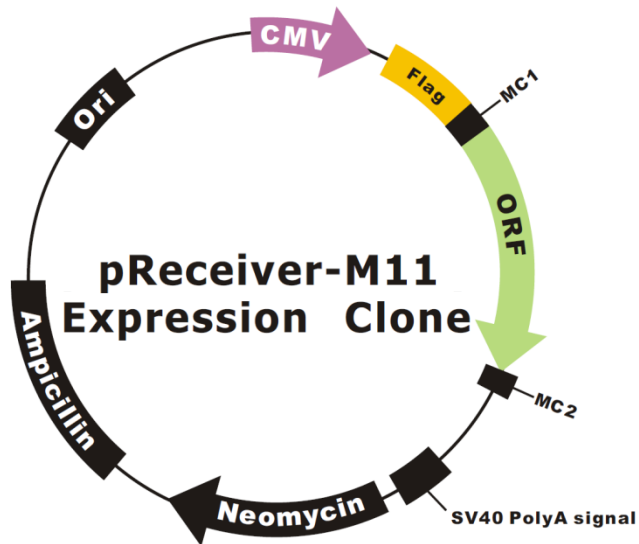
### Flag tag



# Applications for tagged ORF clones

## Protein purification

### Flag tag



- Mammalian cells
- Bacteria
- Cell-free
- Insect cells
- Etc.

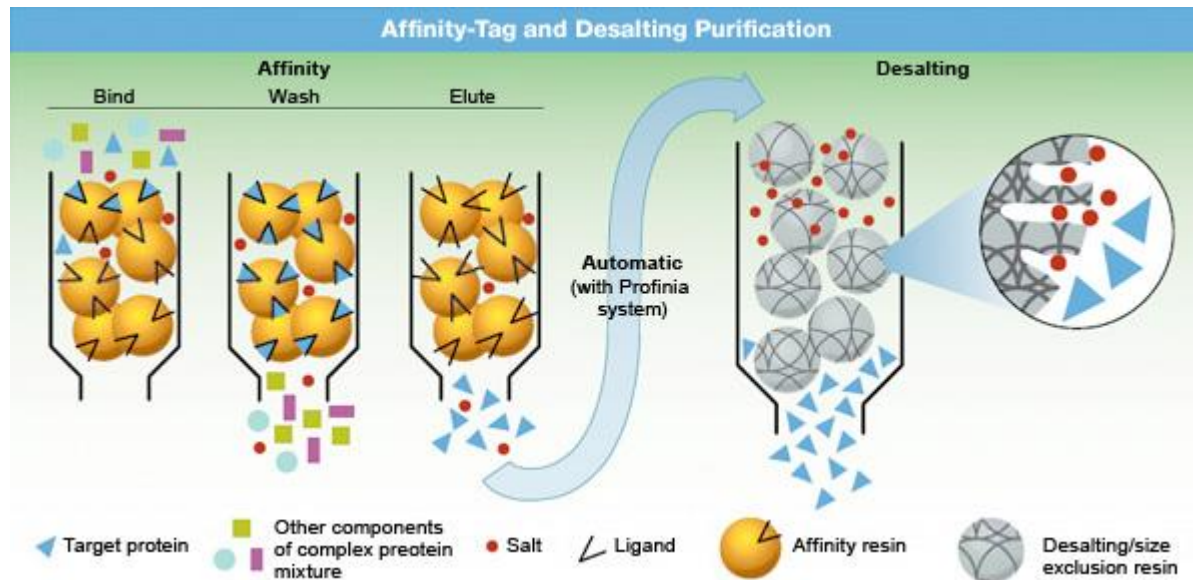
**Lyse cells**



# Applications for tagged ORF clones

## Protein purification

### Flag tag



Affinity purification—typically column or beads (agarose or magnetic)

# Applications for tagged ORF clones

## Live cell imaging

### GFP tag



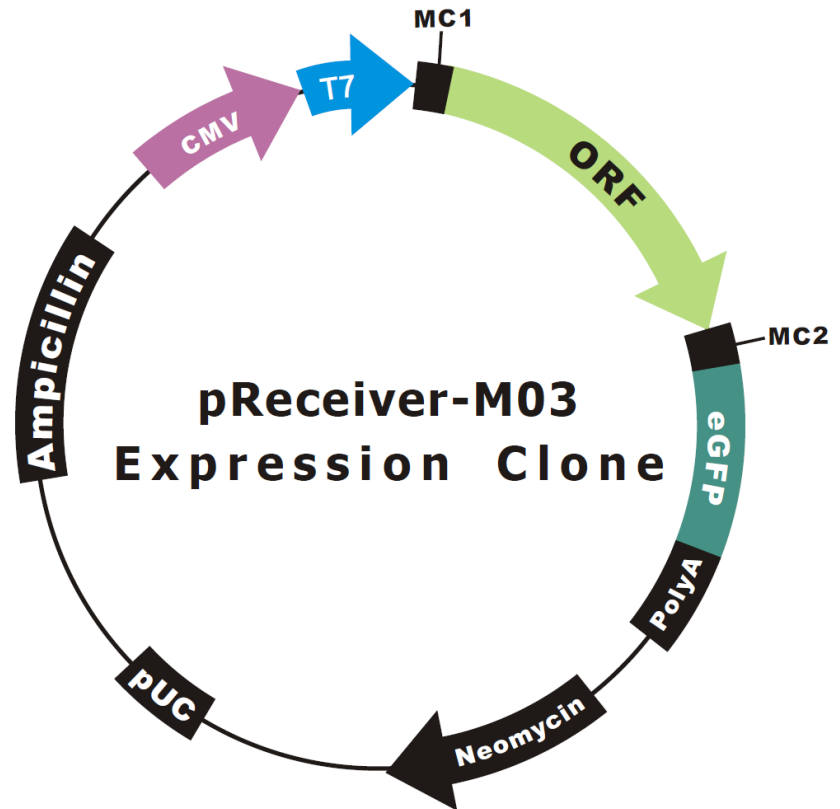
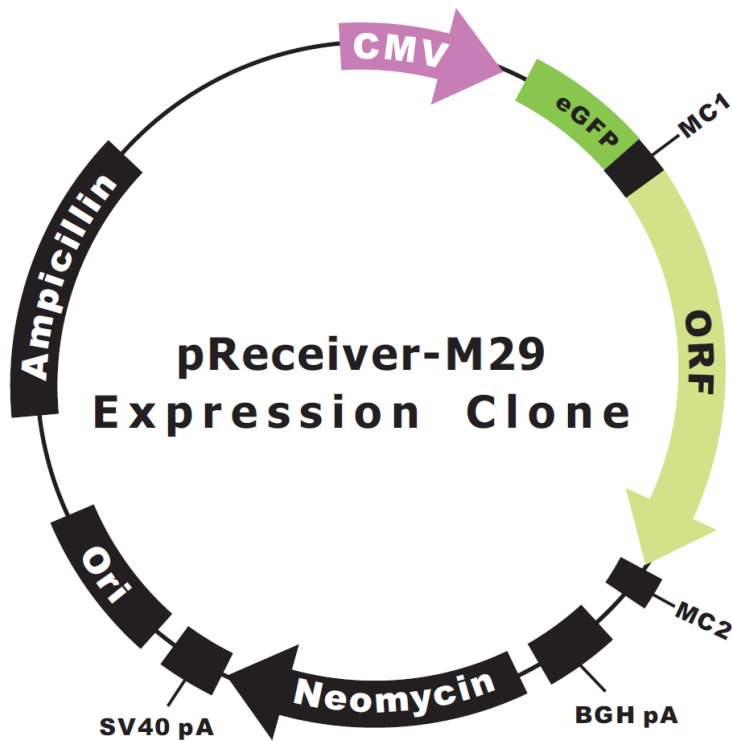
## Features

- Classical fluorescent marker from jellyfish
- Multifunctional tag:  
Usable for live cell imaging, purification, western, IP, & more
- Can be fused at either N- or C-termini

# Applications for tagged ORF clones

Live cell imaging

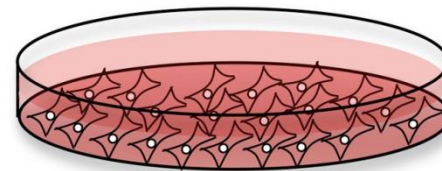
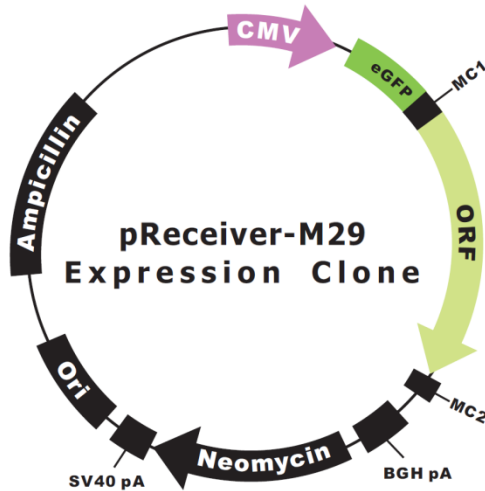
GFP tag



# Applications for tagged ORF clones

Live cell imaging

GFP tag



- Mammalian cells
- Bacteria
- Cell-free
- Insect cells
- Etc.

**View cells under microscope**

# Applications for tagged ORF clones

## Live cell imaging

### HaloTag® 7



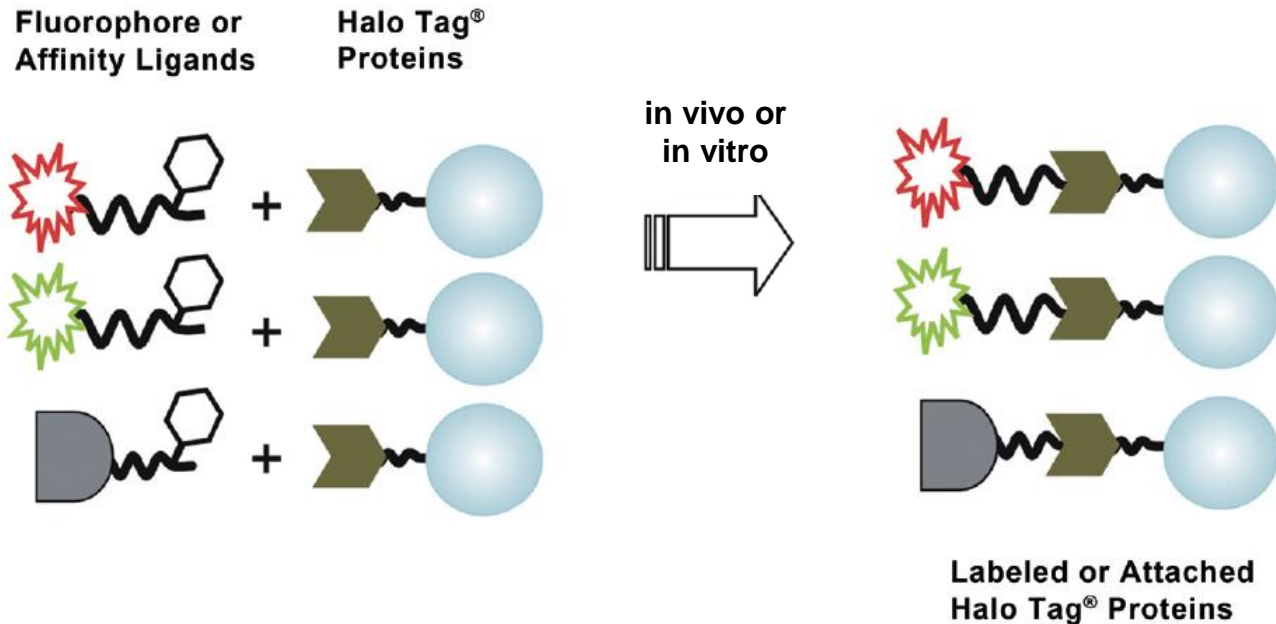
## Features

- Genetically engineered derivative of a dehalogenase
- Multifunctional tag:  
Usable for live cell imaging, purification, western, IP, & more
- Efficiently forms a covalent bond with various synthetic HaloTag® ligands
- Can be fused at either N- or C-termini

# Applications for tagged ORF clones

## Live cell imaging

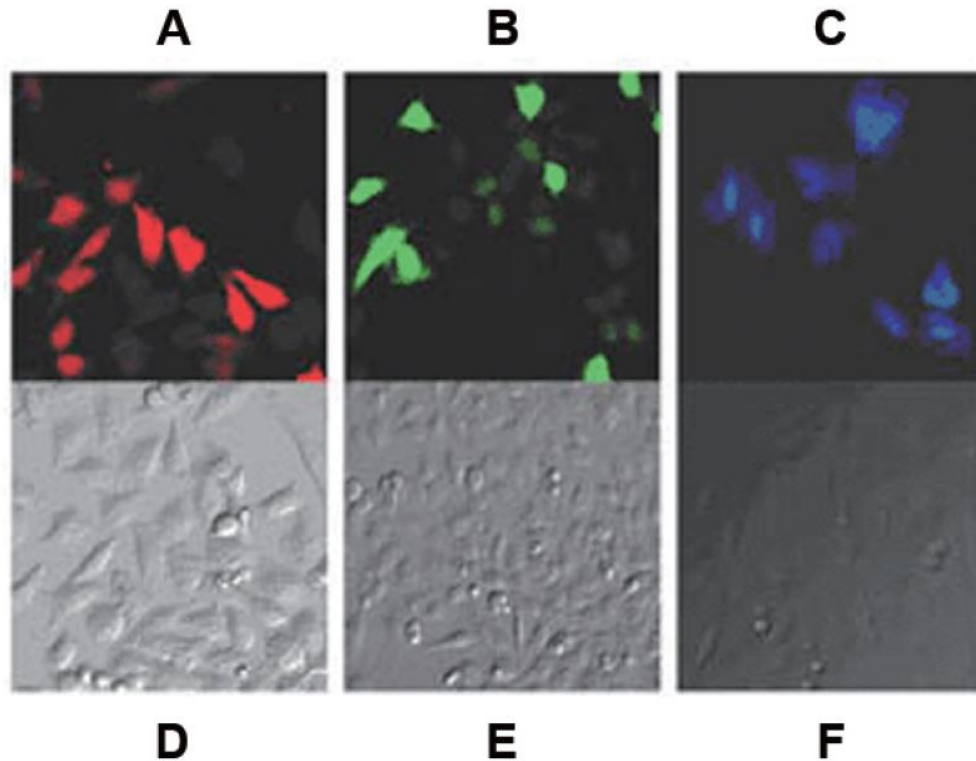
### HaloTag® 7



# Applications for tagged ORF clones

Live cell imaging

HaloTag® 7



# Applications for tagged ORF clones

## Pull-down

Avi Tag™



## Features

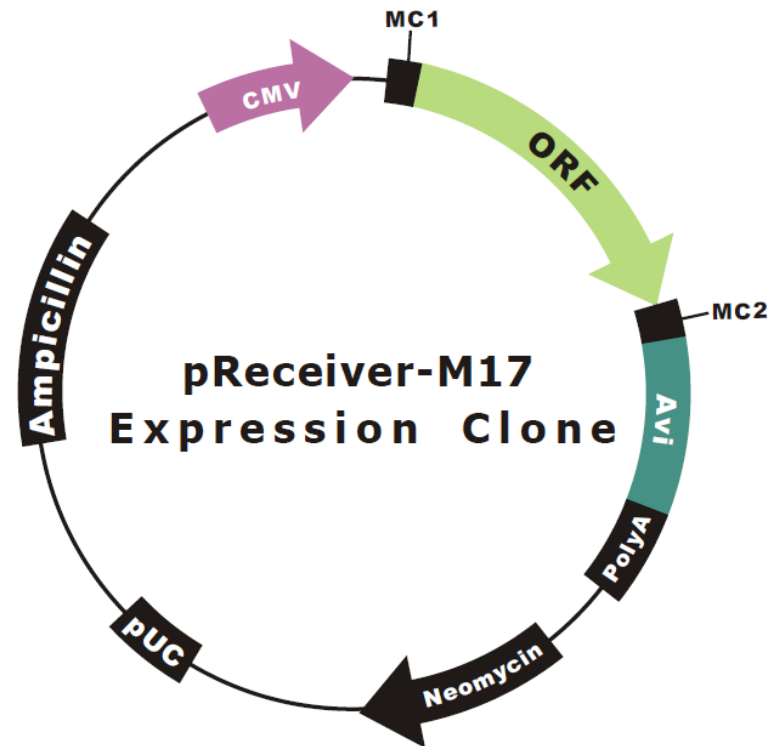
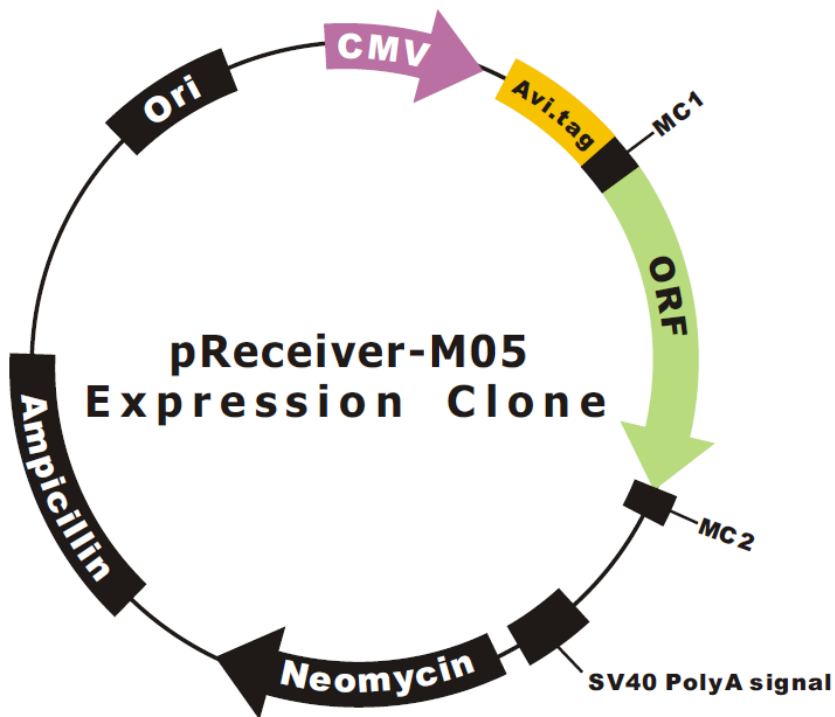
- Specific and reversible binding of avidin or streptavidin to biotin
- Biotinylated by biotin ligase in vitro or in vivo
- Can be fused at either N- or C-termini
- Biotinylated by biotin ligase in vitro or in vivo
- Small tag less likely to interfere with protein function



# Applications for tagged ORF clones

Pull-down

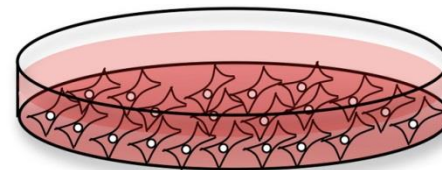
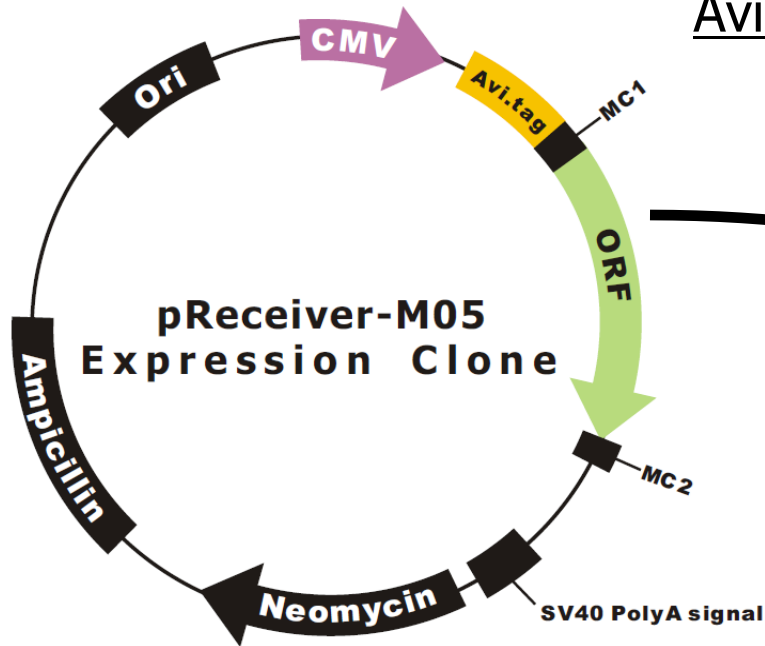
Avi Tag<sup>TM</sup>



# Applications for tagged ORF clones

Pull-down

Avi Tag<sup>TM</sup>



- Mammalian cells
- Bacteria
- Cell-free
- Insect cells
- Etc.

**Isolate proteins for western and/or mass spectrometry**



# Outline

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- Introduction to GeneCopoeia
- OmicsLink™ Expression-ready clones
- Applications for ORF clones
- How to order GeneCopoeia ORF clones

# How do I order a GeneCopoeia clone?

**GeneCopoeia™**  
*Expressway to Discovery*

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Questions? Call us toll-free!  
**1-866-360-9531**  
Mon-Fri 9am-5pm EST

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Please enter the keyword

All

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## Infect all cells

Lentiviral cDNA, shRNA, miRNA...

...packaging kits and particles.

[Express any ORF](#)

[Infect all cells](#)

[Analyze expression](#)

[Explore microRNA](#)

[Knock it down](#)

[Edit genome](#)

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ORF cDNA clones

ORF donor clones

Promoter clones

qPCR primers

shRNA clones

miRNA products

miRNA target clones

Lentivirus

Proteins

Learn more about

expression-ready ORF cDNA clones collection **Search full-length ORF cDNA clones**

**Budget Friendly ORF Clones**  
**\$199 and up**

**Mammalian, lentiviral and Gateway clones at next day shipping!**

Search Clones:

- [All species](#)
- [Human](#)
- [Mouse](#)
- [Zebrafish](#)
- [SARS](#)
- [Shigella flexneri](#)

Gene categories:

- [Gene Symbols](#)
- [Pathways](#)
- [Gene Groups](#)
- [Genes and Disease](#)
- [Subcellular localization](#)
- [Gene Ontology](#)

## 1. Simple search by gene symbol, aliases, description, nucleotide accession, Entrez gene ID, catalog or product ID

Select species:

- ☒ Human+Mouse ☐ Human ☐ Mouse ☐ Zebrafish

Enter Keyword(s):

[Search](#)

## 2. Search by a specific field

Select species:

- ☒ Human+Mouse ☐ Human ☐ Mouse ☐ Zebrafish

Select field:

- ☒ Description ☐ Symbols/Aliases  
☐ Nucleotide Accession ☐ UniGene ID  
☐ Entrez Gene ID ☐ Catalog/product ID

Enter Keyword(s):

[Search](#)

## 3. Browse genes by signal pathway

- Over 50 signaling pathways
- Easy to search and quick to order



## 4. Search by sequence homology (BLAST)

Select species:

- ☒ Human ☐ Mouse ☐ Zebrafish

Select sequence type: ☐ Protein ☒ Nucleotide

Enter query sequence:

[Submit](#)

## ORF clone sets

Available in mammalian, lentiviral and Gateway vectors



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Enter Keyword(s):

SOX2

SOX20

SOX21

SOX22

SOX25

SOX26

SOX27

SOX28

Search

## 2. Search by a specific field

Select species:

☒ Human+Mouse

Select field:

☒ Description

☐ Nucleotide Accession

☐ Entrez Gene ID

Aliases

Gene ID

Product ID

Enter Keyword(s):

Search

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Enter Keyword(s):

SOX2

Search

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Select field:

- ☒ Description  
☐ Nucleotide Accession  
☐ Entrez Gene ID

SOX2

SOX20

SOX21

SOX22

SOX25

SOX26

SOX27

SOX28

Aliases

ID

Product ID

Enter Keyword(s):

Search

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ORF clone sets

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[shRNA clones](#)

[miRNA products](#)

[miRNA target clones](#)

[Lentivirus](#)

[Proteins](#)

Search Result: ORF Clones

Click [Product ID](#) to select clones

Accession	Symbol	Species	Description	Product ID
NM_003106.3	SOX2	Human	Homo sapiens SRY (sex determining region Y)-box 2 (SOX2), mRNA.	<a href="#">T2547</a>

Page: 1 of 1    Select page: [1](#)

Search related products for "SOX2":

[Promoter](#) [qPCR](#) [shRNA](#) [miRNA](#) [miRNA target](#) [Lentivirus](#) [Protein](#)

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# How do I order a GeneCopoeia clone?

Add clones to shopping cart to view shipping formats, prices and proceed with order

 Add to Shopping Cart

Mammalian (36)

Lentiviral (96)

Bacterial (15)

Yeast (3)

Insect (1)

Wheat germ (8)

Gateway (4)

Budget-friendly (6)

Controls and Kits (188)

☐ Mammalian (36 types)

Buy	Catalog#	Promoter	Host Cell	Selection Marker	Tag	Protease Site	Vector
<input type="checkbox"/>	EX-T2547-M01	CMV	Mammalian	Neomycin	N-His	N/A	<a href="#">pReceiver-M01</a>
<input type="checkbox"/>	EX-T2547-M77	CMV	Mammalian	Neomycin	C-His	N/A	<a href="#">pReceiver-M77</a>
<input type="checkbox"/>	EX-T2547-M51	CMV	Mammalian	Neomycin	C-His+IRES-eGFP	N/A	<a href="#">pReceiver-M51</a>
<input type="checkbox"/>	EX-T2547-M02	CMV	Mammalian	Neomycin	N/A	N/A	<a href="#">pReceiver-M02</a>
<input type="checkbox"/>	EX-T2547-M68	CMV	Mammalian	Puromycin	N/A	N/A	<a href="#">pReceiver-M68</a>
<input type="checkbox"/>	EX-T2547-M67	CMV	Mammalian	Hygromycin	N/A	N/A	<a href="#">pReceiver-M67</a>
<input type="checkbox"/>	EX-T2547-M29	CMV	Mammalian	Neomycin	N-eGFP	N/A	<a href="#">pReceiver-M29</a>
<input type="checkbox"/>	EX-T2547-M98	CMV	Mammalian	Neomycin	C-eGFP(monomeric)	N/A	<a href="#">pReceiver-M98</a>
<input type="checkbox"/>	EX-T2547-M03	CMV	Mammalian	Neomycin	C-eGFP	N/A	<a href="#">pReceiver-M03</a>
<input type="checkbox"/>	EX-T2547-M15	CMV	Mammalian	Neomycin	N-eYFP	N/A	<a href="#">pReceiver-M15</a>
<input type="checkbox"/>	EX-T2547-M16	CMV	Mammalian	Neomycin	C-eYFP	N/A	<a href="#">pReceiver-M16</a>
<input type="checkbox"/>	EX-T2547-M32	CMV	Mammalian	Neomycin	N-eCFP	N/A	<a href="#">pReceiver-M32</a>
<input type="checkbox"/>	EX-T2547-M33	CMV	Mammalian	Neomycin	C-eCFP	N/A	<a href="#">pReceiver-M33</a>
<input type="checkbox"/>	EX-T2547-M04	CMV	Mammalian	Neomycin	N-GST	EK	<a href="#">pReceiver-M04</a>

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<input type="checkbox"/>	EX-T2547-M77	CMV	Mammalian	Neomycin	C-His	N/A	<a href="#">pReceiver-M77</a>
<input type="checkbox"/>	EX-T2547-M51	CMV	Mammalian	Neomycin	C-His+IRES-eGFP	N/A	<a href="#">pReceiver-M51</a>
<input type="checkbox"/>	EX-T2547-M02	CMV	Mammalian	Neomycin	N/A	N/A	<a href="#">pReceiver-M02</a>
<input type="checkbox"/>	EX-T2547-M68	CMV	Mammalian	Puromycin	N/A	N/A	<a href="#">pReceiver-M68</a>
<input type="checkbox"/>	EX-T2547-M67	CMV	Mammalian	Hygromycin	N/A	N/A	<a href="#">pReceiver-M67</a>
<input type="checkbox"/>	EX-T2547-M29	CMV	Mammalian	Neomycin	N-eGFP	N/A	<a href="#">pReceiver-M29</a>
<input type="checkbox"/>	EX-T2547-M98	CMV	Mammalian	Neomycin	C-eGFP(monomeric)	N/A	<a href="#">pReceiver-M98</a>
<input type="checkbox"/>	EX-T2547-M03	CMV	Mammalian	Neomycin	C-eGFP	N/A	<a href="#">pReceiver-M03</a>
<input type="checkbox"/>	EX-T2547-M15	CMV	Mammalian	Neomycin	N-eYFP	N/A	<a href="#">pReceiver-M15</a>
<input type="checkbox"/>	EX-T2547-M16	CMV	Mammalian	Neomycin	C-eYFP	N/A	<a href="#">pReceiver-M16</a>
<input type="checkbox"/>	EX-T2547-M32	CMV	Mammalian	Neomycin	N-eCFP	N/A	<a href="#">pReceiver-M32</a>
<input type="checkbox"/>	EX-T2547-M33	CMV	Mammalian	Neomycin	C-eCFP	N/A	<a href="#">pReceiver-M33</a>
<input type="checkbox"/>	EX-T2547-M04	CMV	Mammalian	Neomycin	N-GST	EK	<a href="#">pReceiver-M04</a>

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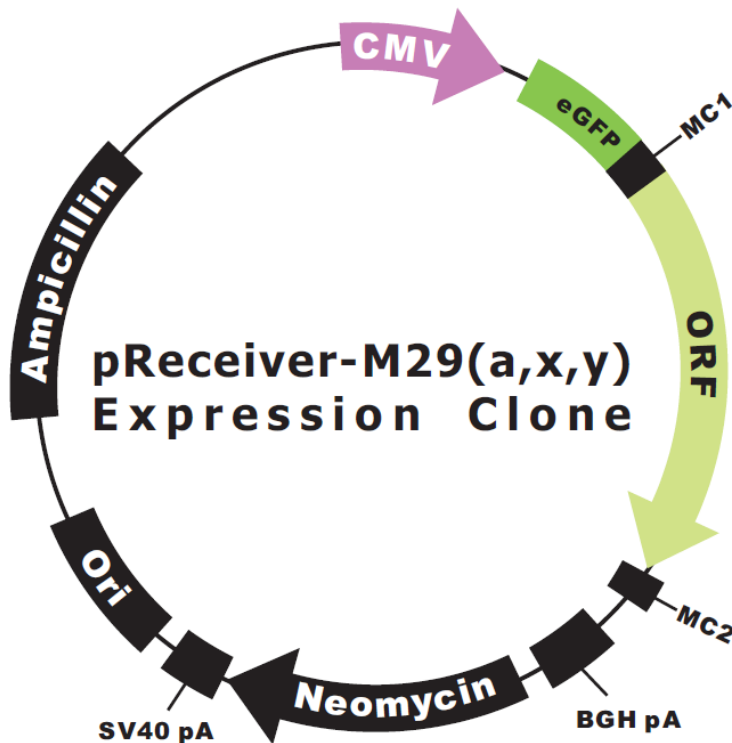
Controls and Kits (188)

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Buy	Catalog#	Promoter	Host Cell	Selection Marker	Tag	Protease Site	Vector
<input type="checkbox"/>	EX-T2547-M01	CMV	Mammalian	Neomycin	N-His	N/A	<a href="#">pReceiver-M01</a>
<input type="checkbox"/>	EX-T2547-M77	CMV	Mammalian	Neomycin	C-His	N/A	<a href="#">pReceiver-M77</a>
<input type="checkbox"/>	EX-T2547-M51	CMV	Mammalian	Neomycin	C-His+IRES-eGFP	N/A	<a href="#">pReceiver-M51</a>
<input type="checkbox"/>	EX-T2547-M02	CMV	Mammalian	Neomycin	N/A	N/A	<a href="#">pReceiver-M02</a>
<input type="checkbox"/>	EX-T2547-M68	CMV	Mammalian	Puromycin	N/A	N/A	<a href="#">pReceiver-M68</a>
<input type="checkbox"/>	EX-T2547-M67	CMV	Mammalian	Hygromycin	N/A	N/A	<a href="#">pReceiver-M67</a>
<input type="checkbox"/>	EX-T2547-M29	CMV	Mammalian	Neomycin	N-eGFP	N/A	<a href="#">pReceiver-M29</a>
<input type="checkbox"/>	EX-T2547-M98	CMV	Mammalian	Neomycin	C-eGFP(monomeric)	N/A	<a href="#">pReceiver-M98</a>
<input type="checkbox"/>	EX-T2547-M03	CMV	Mammalian	Neomycin	C-eGFP	N/A	<a href="#">pReceiver-M03</a>
<input type="checkbox"/>	EX-T2547-M15	CMV	Mammalian	Neomycin	N-eYFP	N/A	<a href="#">pReceiver-M15</a>
<input type="checkbox"/>	EX-T2547-M16	CMV	Mammalian	Neomycin	C-eYFP	N/A	<a href="#">pReceiver-M16</a>
<input type="checkbox"/>	EX-T2547-M32	CMV	Mammalian	Neomycin	N-eCFP	N/A	<a href="#">pReceiver-M32</a>
<input type="checkbox"/>	EX-T2547-M33	CMV	Mammalian	Neomycin	C-eCFP	N/A	<a href="#">pReceiver-M33</a>
<input type="checkbox"/>	EX-T2547-M04	CMV	Mammalian	Neomycin	N-GST	EK	<a href="#">pReceiver-M04</a>

# How do I order a GeneCopoeia clone?

## OmicsLink™ Expression Clone (CMV Promoter)



### Vector Features

Promoter	CMV
Host Cell	Mammalian
Bacterial selection antibiotic	Ampicillin
Mammalian selection marker	Yes
Tag	eGFP

# How do I order a GeneCopoeia clone?

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<input type="checkbox"/>	EX-T2547-M01	CMV	Mammalian	Neomycin	N-His	N/A	<a href="#">pReceiver-M01</a>
<input type="checkbox"/>	EX-T2547-M77	CMV	Mammalian	Neomycin	C-His	N/A	<a href="#">pReceiver-M77</a>
<input type="checkbox"/>	EX-T2547-M51	CMV	Mammalian	Neomycin	C-His+IRES-eGFP	N/A	<a href="#">pReceiver-M51</a>
<input type="checkbox"/>	EX-T2547-M02	CMV	Mammalian	Neomycin	N/A	N/A	<a href="#">pReceiver-M02</a>
<input type="checkbox"/>	EX-T2547-M68	CMV	Mammalian	Puromycin	N/A	N/A	<a href="#">pReceiver-M68</a>
<input type="checkbox"/>	EX-T2547-M67	CMV	Mammalian	Hygromycin	N/A	N/A	<a href="#">pReceiver-M67</a>
<input checked="" type="checkbox"/>	EX-T2547-M29	CMV	Mammalian	Neomycin	N-eGFP	N/A	<a href="#">pReceiver-M29</a>
<input type="checkbox"/>	EX-T2547-M98	CMV	Mammalian	Neomycin	C-eGFP(monomeric)	N/A	<a href="#">pReceiver-M98</a>
<input type="checkbox"/>	EX-T2547-M03	CMV	Mammalian	Neomycin	C-eGFP	N/A	<a href="#">pReceiver-M03</a>
<input type="checkbox"/>	EX-T2547-M15	CMV	Mammalian	Neomycin	N-eYFP	N/A	<a href="#">pReceiver-M15</a>
<input type="checkbox"/>	EX-T2547-M16	CMV	Mammalian	Neomycin	C-eYFP	N/A	<a href="#">pReceiver-M16</a>
<input type="checkbox"/>	EX-T2547-M32	CMV	Mammalian	Neomycin	N-eCFP	N/A	<a href="#">pReceiver-M32</a>
<input type="checkbox"/>	EX-T2547-M33	CMV	Mammalian	Neomycin	C-eCFP	N/A	<a href="#">pReceiver-M33</a>
<input type="checkbox"/>	EX-T2547-M04	CMV	Mammalian	Neomycin	N-GST	EK	<a href="#">pReceiver-M04</a>

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<input type="checkbox"/>	EX-T2547-M77	CMV	Mammalian	Neomycin	C-His	N/A	<a href="#">pReceiver-M77</a>
<input type="checkbox"/>	EX-T2547-M51	CMV	Mammalian	Neomycin	C-His+IRES-eGFP	N/A	<a href="#">pReceiver-M51</a>
<input type="checkbox"/>	EX-T2547-M02	CMV	Mammalian	Neomycin	N/A	N/A	<a href="#">pReceiver-M02</a>
<input type="checkbox"/>	EX-T2547-M68	CMV	Mammalian	Puromycin	N/A	N/A	<a href="#">pReceiver-M68</a>
<input type="checkbox"/>	EX-T2547-M67	CMV	Mammalian	Hygromycin	N/A	N/A	<a href="#">pReceiver-M67</a>
<input checked="" type="checkbox"/>	EX-T2547-M29	CMV	Mammalian	Neomycin	N-eGFP	N/A	<a href="#">pReceiver-M29</a>
<input type="checkbox"/>	EX-T2547-M98	CMV	Mammalian	Neomycin	C-eGFP(monomeric)	N/A	<a href="#">pReceiver-M98</a>
<input type="checkbox"/>	EX-T2547-M03	CMV	Mammalian	Neomycin	C-eGFP	N/A	<a href="#">pReceiver-M03</a>
<input type="checkbox"/>	EX-T2547-M15	CMV	Mammalian	Neomycin	N-eYFP	N/A	<a href="#">pReceiver-M15</a>
<input type="checkbox"/>	EX-T2547-M16	CMV	Mammalian	Neomycin	C-eYFP	N/A	<a href="#">pReceiver-M16</a>
<input type="checkbox"/>	EX-T2547-M32	CMV	Mammalian	Neomycin	N-eCFP	N/A	<a href="#">pReceiver-M32</a>
<input type="checkbox"/>	EX-T2547-M33	CMV	Mammalian	Neomycin	C-eCFP	N/A	<a href="#">pReceiver-M33</a>
<input type="checkbox"/>	EX-T2547-M04	CMV	Mammalian	Neomycin	N-GST	EK	<a href="#">pReceiver-M04</a>



# How do I order a GeneCopoeia clone?

Delivery format

 Close

## Select delivery format

Standard delivery format for all other clones: Varies

Buy	Catalog#	Delivery format	Delivery time
<input checked="" type="checkbox"/>	EX-T2547-M29	10µg purified plasmid	5-10 days

 Add to Shopping Cart

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## Shopping Cart

Catalog#	Description	Size	Qty	List Price (US\$)	Discount Price (US\$)		
EX-T2547-M29	ORF expression clone for SOX2(NM_003106.3) (Purified plasmid)		1	805.00	564.00	<a href="#">Update</a>	<a href="#">Delete</a>
Total (US\$):					564.00		

Promotion Code:

[Apply](#)

## Related products:

To view prices and proceed with order, check 'Buy', and then click on 'Add to Shopping Cart' button

Buy	Catalog#	Description
<input type="checkbox"/>	EX-NEG-M29	Empty control vector for pReceiver-M29
<input type="checkbox"/>	HSH017628	shRNA against ORF clone #T2547
<input type="checkbox"/>	Variable	Anti-tag antibodies (GFP, Myc, His, HA, GST, D tag - also known as FLAG tag) <b>20% off when purchased with a clone</b>

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<input type="checkbox"/>	HSH017628	shRNA against ORF clone #T2547
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<input type="checkbox"/>	EX-T2547-M77	CMV	Mammalian	Neomycin	C-His	N/A	<a href="#">pReceiver-M77</a>
<input type="checkbox"/>	EX-T2547-M51	CMV	Mammalian	Neomycin	C-His+IRES-eGFP	N/A	<a href="#">pReceiver-M51</a>
<input checked="" type="checkbox"/>	EX-T2547-M02	CMV	Mammalian	Neomycin	N/A	N/A	<a href="#">pReceiver-M02</a>
<input type="checkbox"/>	EX-T2547-M68	CMV	Mammalian	Puromycin	N/A	N/A	<a href="#">pReceiver-M68</a>
<input type="checkbox"/>	EX-T2547-M67	CMV	Mammalian	Hygromycin	N/A	N/A	<a href="#">pReceiver-M67</a>
<input type="checkbox"/>	EX-T2547-M29	CMV	Mammalian	Neomycin	N-eGFP	N/A	<a href="#">pReceiver-M29</a>
<input type="checkbox"/>	EX-T2547-M98	CMV	Mammalian	Neomycin	C-eGFP(monomeric)	N/A	<a href="#">pReceiver-M98</a>
<input type="checkbox"/>	EX-T2547-M03	CMV	Mammalian	Neomycin	C-eGFP	N/A	<a href="#">pReceiver-M03</a>
<input type="checkbox"/>	EX-T2547-M15	CMV	Mammalian	Neomycin	N-eYFP	N/A	<a href="#">pReceiver-M15</a>
<input type="checkbox"/>	EX-T2547-M16	CMV	Mammalian	Neomycin	C-eYFP	N/A	<a href="#">pReceiver-M16</a>
<input type="checkbox"/>	EX-T2547-M32	CMV	Mammalian	Neomycin	N-eCFP	N/A	<a href="#">pReceiver-M32</a>
<input type="checkbox"/>	EX-T2547-M33	CMV	Mammalian	Neomycin	C-eCFP	N/A	<a href="#">pReceiver-M33</a>
<input type="checkbox"/>	EX-T2547-M04	CMV	Mammalian	Neomycin	N-GST	EK	<a href="#">pReceiver-M04</a>

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<input type="checkbox"/>	EX-T2547-M01	CMV	Mammalian	Neomycin	N-His	N/A	<a href="#">pReceiver-M01</a>
<input type="checkbox"/>	EX-T2547-M77	CMV	Mammalian	Neomycin	C-His	N/A	<a href="#">pReceiver-M77</a>
<input type="checkbox"/>	EX-T2547-M51	CMV	Mammalian	Neomycin	C-His+IRES-eGFP	N/A	<a href="#">pReceiver-M51</a>
<input checked="" type="checkbox"/>	EX-T2547-M02	CMV	Mammalian	Neomycin	N/A	N/A	<a href="#">pReceiver-M02</a>
<input type="checkbox"/>	EX-T2547-M68	CMV	Mammalian	Puromycin	N/A	N/A	<a href="#">pReceiver-M68</a>
<input type="checkbox"/>	EX-T2547-M67	CMV	Mammalian	Hygromycin	N/A	N/A	<a href="#">pReceiver-M67</a>
<input type="checkbox"/>	EX-T2547-M29	CMV	Mammalian	Neomycin	N-eGFP	N/A	<a href="#">pReceiver-M29</a>
<input type="checkbox"/>	EX-T2547-M98	CMV	Mammalian	Neomycin	C-eGFP(monomeric)	N/A	<a href="#">pReceiver-M98</a>
<input type="checkbox"/>	EX-T2547-M03	CMV	Mammalian	Neomycin	C-eGFP	N/A	<a href="#">pReceiver-M03</a>
<input type="checkbox"/>	EX-T2547-M15	CMV	Mammalian	Neomycin	N-eYFP	N/A	<a href="#">pReceiver-M15</a>
<input type="checkbox"/>	EX-T2547-M16	CMV	Mammalian	Neomycin	C-eYFP	N/A	<a href="#">pReceiver-M16</a>
<input type="checkbox"/>	EX-T2547-M32	CMV	Mammalian	Neomycin	N-eCFP	N/A	<a href="#">pReceiver-M32</a>
<input type="checkbox"/>	EX-T2547-M33	CMV	Mammalian	Neomycin	C-eCFP	N/A	<a href="#">pReceiver-M33</a>
<input type="checkbox"/>	EX-T2547-M04	CMV	Mammalian	Neomycin	N-GST	EK	<a href="#">pReceiver-M04</a>

# How do I order a GeneCopoeia clone?

Delivery format

 Close

## Select delivery format

Standard delivery format for budget-friendly clone collection: Bacterial stock

Buy	Catalog#	Delivery format	Delivery time
<input checked="" type="radio"/>	EX-T2547-M02-B	Bacterial stock	Next day shipment
<input type="radio"/>	EX-T2547-M02-10	10µg purified plasmid	3-5 days (add \$50)
<input type="radio"/>	EX-T2547-M02-50	50µg purified plasmid	3-5 days (add \$100)



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# How do I order a GeneCopoeia clone?



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Catalog#	Description	Size	Qty	List Price (US\$)	Discount Price (US\$)		
EX-T2547-M29	ORF expression clone for SOX2(NM_003106.3) (Purified plasmid)		<input type="text" value="1"/>	805.00	564.00	<a href="#">Update</a>	<a href="#">Delete</a>
EX-T2547-M02-B	ORF expression clone for SOX2(NM_003106.3) (Bacterial stock)		<input type="text" value="1"/>	495.00	175.00*	<a href="#">Update</a>	<a href="#">Delete</a>
Total (US\$):				739.00			

Promotion Code:

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\* Discount applies to: (1) control clones when purchased together with non-control clones in the same corresponding vector (type); (2) ORF clones when purchased together with the same ORF product ID in a different vector type.

## Related products:

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Buy	Catalog#	Description
<input type="checkbox"/>	EX-NEG-M29	Empty control vector for pReceiver-M29
<input type="checkbox"/>	HSH017628	shRNA against ORF clone #T2547
<input type="checkbox"/>	Variable	Anti-tag antibodies (GFP, Myc, His, HA, GST, D tag - also known as FLAG tag) 20% off when purchased with a clone

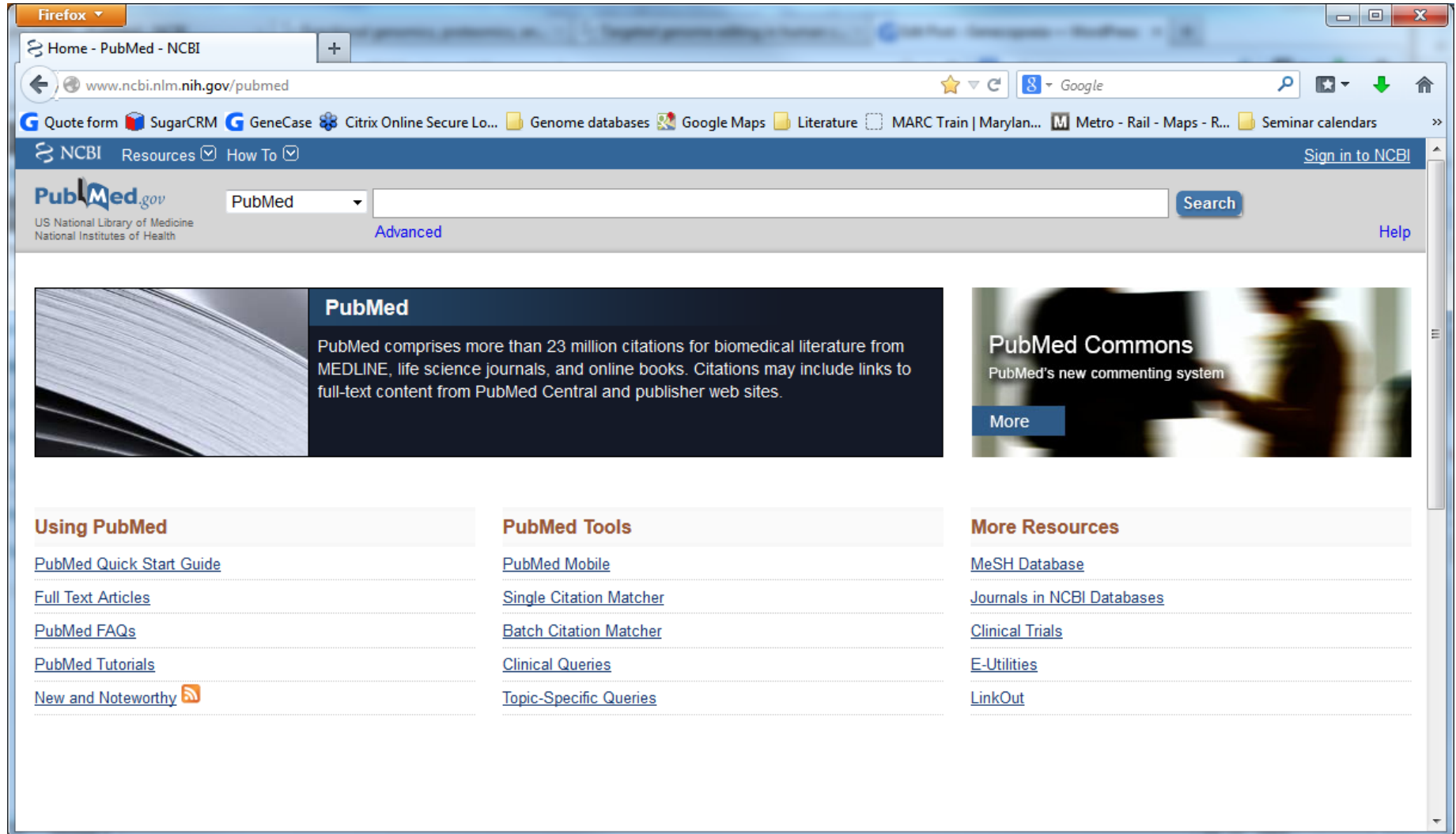
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# How do I order a GeneCopoeia clone?



The screenshot shows the PubMed website in a Firefox browser window. The address bar displays [www.ncbi.nlm.nih.gov/pubmed](http://www.ncbi.nlm.nih.gov/pubmed). The page header includes the NCBI logo, a search bar with "PubMed" selected, and a "Search" button. Below the header, there are three main sections: "PubMed" (describing the database's 23 million citations), "PubMed Commons" (describing the commenting system), and "More Resources" (listing various tools and databases). The "Using PubMed" section is also visible on the left.

**PubMed**

PubMed comprises more than 23 million citations for biomedical literature from MEDLINE, life science journals, and online books. Citations may include links to full-text content from PubMed Central and publisher web sites.

**PubMed Commons**

PubMed's new commenting system

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# How do I order a GeneCopoeia clone?

## Ready-to-express ORF clone pricing

Clone type	List price	30% off promotional price (through February 28)
Viral & non-viral	Start at \$805.00	Start at \$564.00
Budget-friendly	Start at \$250.00	Start at \$199.00
Secondary clones	Start at \$175.00	Start at \$175.00



# Budget-friendly expression clones

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## What are budget-friendly expression clones?

- >20,000 human ORF clones
- Some ready for next-day shipping
- C-Flag tagged (non-viral only) or untagged
- CMV promoter
- Available in non-viral & lentiviral vectors



# Clone Sets: Genome-wide or families

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- CMV based mammalian expression ready clone sets
  - Untagged: No potential for tag effects
  - C-terminal Flag
  - C-terminal monomeric EGFP
- Lentiviral + CMV expression ready clone sets
  - Untagged: No potential for tag effects
  - C-terminal V5

# Clone Sets: Genome-wide Coverage

Product	# of genes	# of clones	Vector type
Human whole genome mammalian expression clone sets (no tag)	12,841	16,096	Non-viral
Human mammalian expression clone sets (no tag)	Varies depending on set	Varies depending on set	Non-viral
Human whole genome mammalian expression clone sets (with C-terminal Flag tag)	12,579	13,766	Non-viral
Human mammalian expression clone sets (with C-terminal Flag tag)	Varies depending on set	Varies depending on set	Non-viral
Human whole genome lentiviral expression clone sets (with no tag)	12,651	15,799	Lentiviral
Human lentiviral expression clone sets (with no tag)	Varies depending on set	Varies depending on set	Lentiviral
Human whole genome Gateway® PLUS™ shuttle clone sets (no promoter)	14,087	18,660	Gateway®
Human Gateway® PLUS™ shuttle clone sets (no promoter)	Varies depending on set	Varies depending on set	Gateway®

# Clone Sets: Gene families

Species	Set type
Human	CDs
Human	Cytokines & cytokine receptors
Human	Drug target genes
Human	GPCRs
Human	Histones
Human	Histone modification enzymes
Human	Ion channels
Human	Kinases
Human	Membrane-bound proteins
Human	Nuclear hormone receptors
Human	Phosphatases
Human	Proteases
Human	Secretory proteins
Human	Transcription factors
Various	Custom-selected

## Features

- Non-viral: Expression-ready, untagged or C-terminal FLAG-tagged
- Lentiviral: Expression-ready with native protein expression
- Gateway® PLUS shuttle vectors: No promoter
- Custom-made sets available



# GeneCopoeia ORF clones

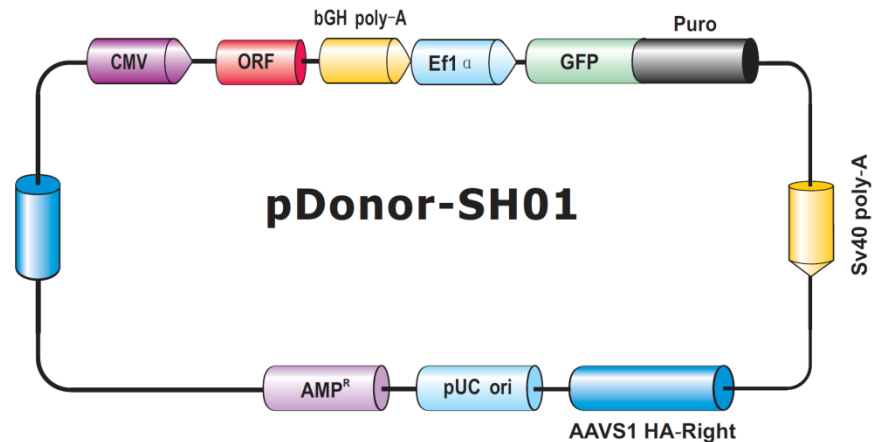
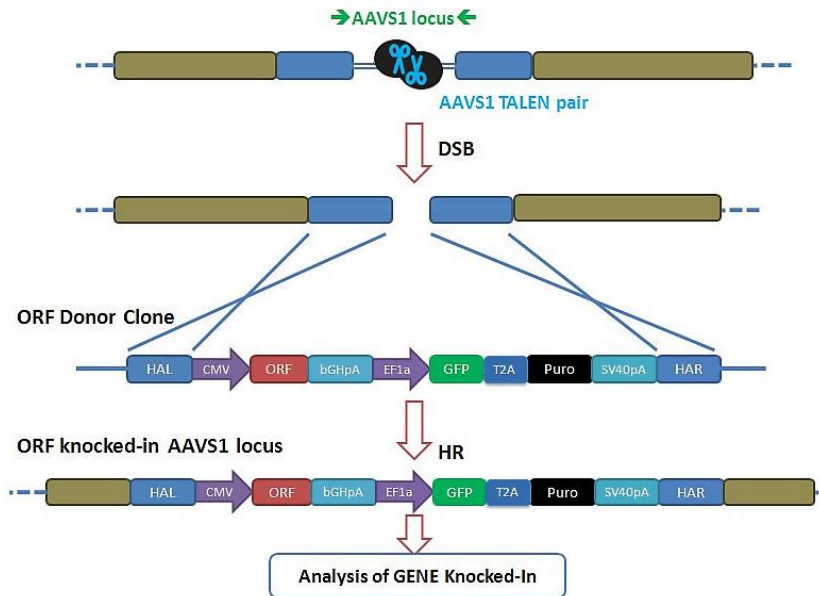
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Other GeneCopoeia ORF clone  
products



# GeneCopoeia genome editing services

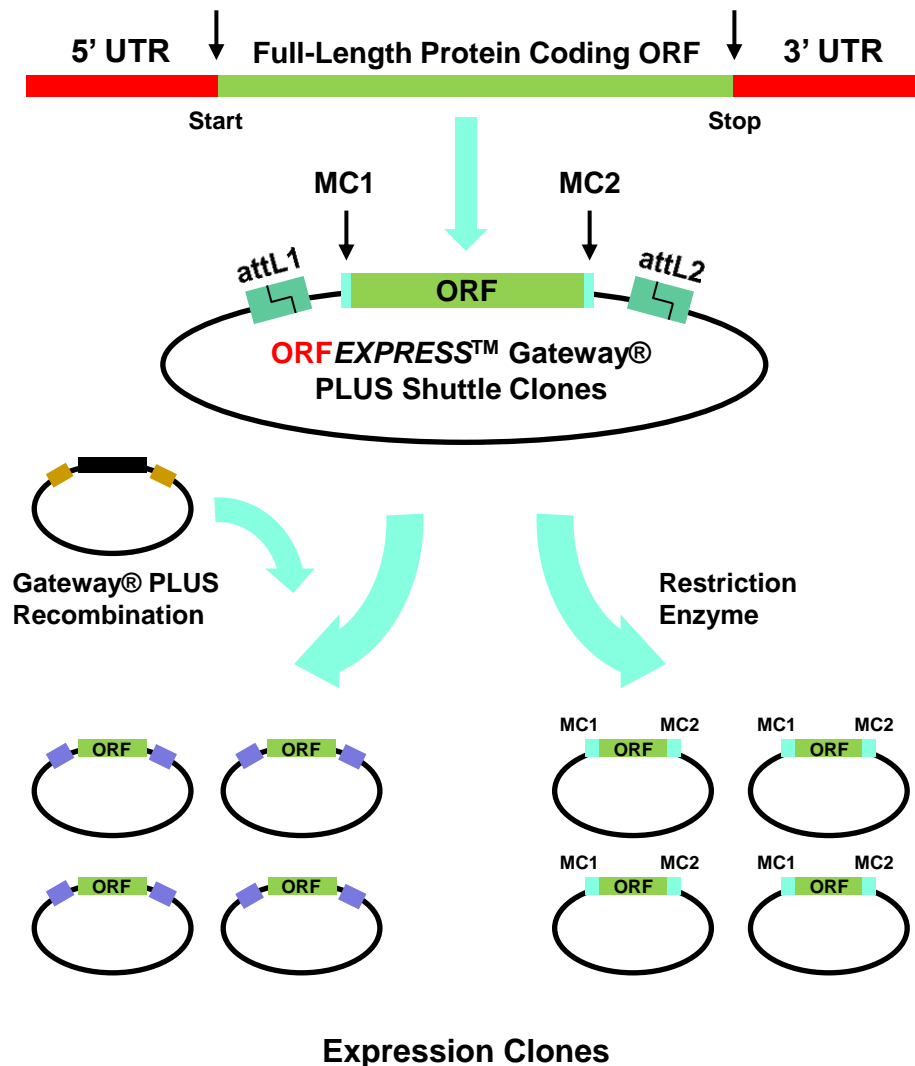
## Safe Harbor Site integration with ORF clones



## Features

- Over 18,000 sequence-verified human ORFs available
- Inserted between AAVS1 sites for ready safe harbor integration using TALEN

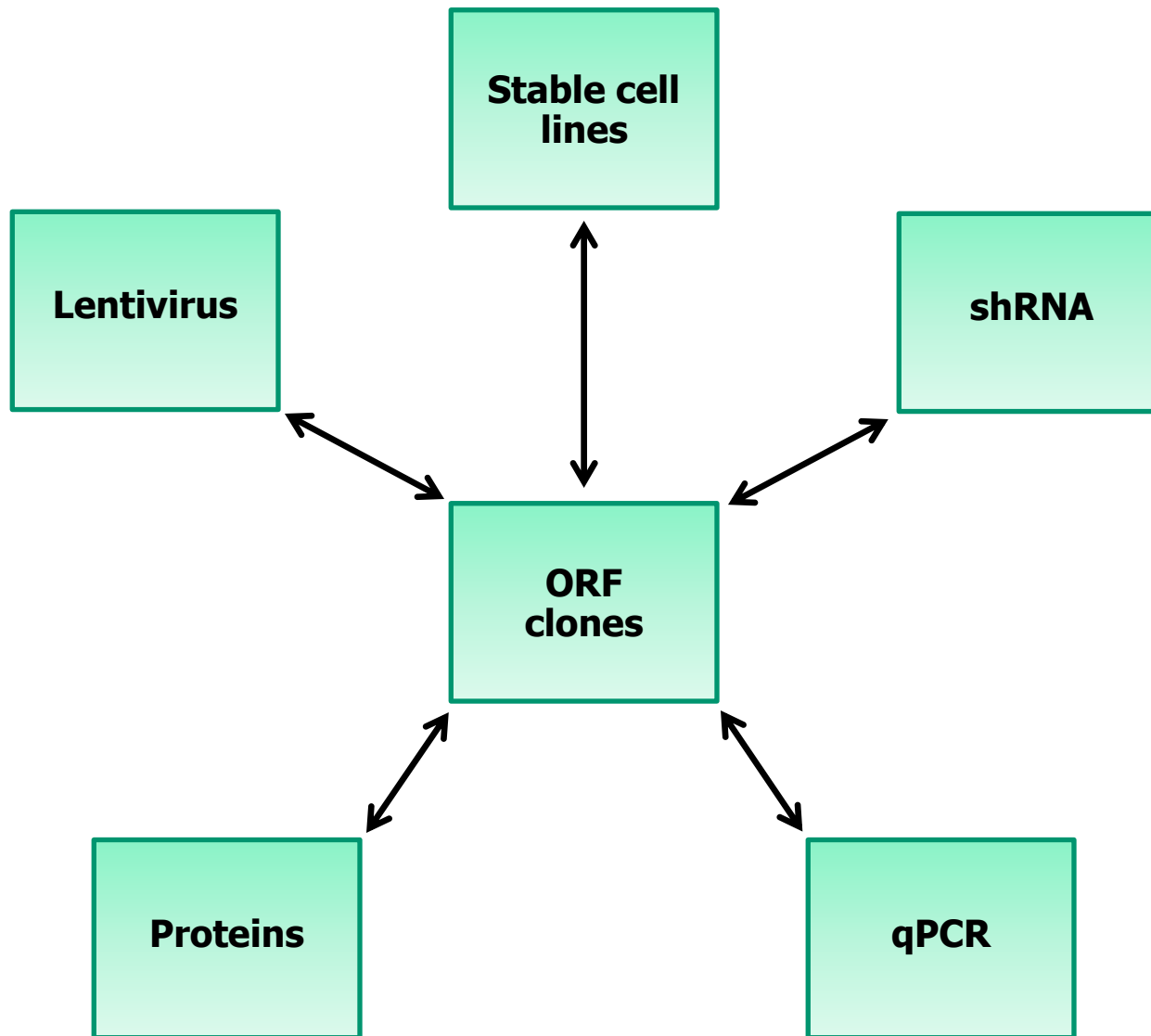
# ORFEXPRESS™ Gateway® PLUS clones



## Features

- Carry both recombination and multiple cloning sites
- 20,000 human, 15,000 mouse clones
- Simple & rapid transfer of protein-coding ORFs into any Gateway destination expression vector
- Available with and without stop codons
- Contain ribosomal binding sites (Shine Dalgarno, Kozak) for optimal translational context

# GeneCopoeia Products & Services





# Summary

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- GeneCopoeia OmicsLink™ clones are full-length ORF clones for human, mouse, & other systems, ready to express without any tedious cloning or verification steps
- GeneCopoeia OmicsLink™ ready-to-express clones come either untagged or with a large variety of functional tags for virtually any application
- GeneCopoeia is the only provider of genome-wide untagged expression-ready ORF clones. All expression-ready clones are sequence-verified & guaranteed
- Protein fusion tags can greatly facilitate your goals of detecting, purifying, and localizing your protein of interest
- Ordering OmicsLink™ ready-to-express clones from GeneCopoeia is as easy & convenient as the click of a mouse



# Thank you!

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If you have any additional  
questions, please call

1-866-360-9531

Or visit us on the web:

[www.genecopoeia.com](http://www.genecopoeia.com)

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**GeneCopoeia™**  
*Expressway to Discovery*