

# Making Smarter Choices on cDNA clones



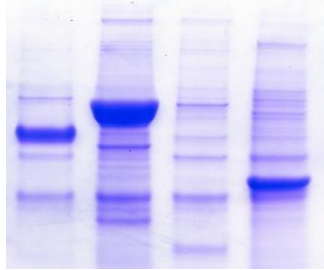
# OriGene, Your Gene Company



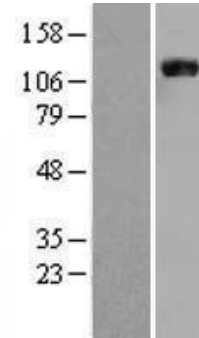
- Over a decade of dedication to clone every human/mouse gene
- Leading source for high-quality cDNA clones
- Widely used by researchers in academia and pharma
- Cited in thousands of publications
- Recently acquired Blue Heron and became a one-stop shop for all cDNA clone needs



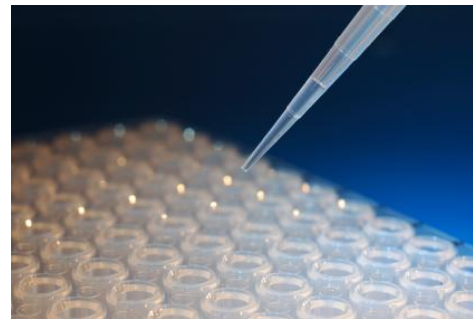
# cDNA clone utilities



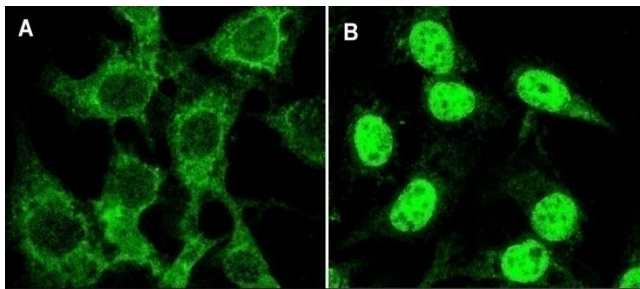
Protein Over-expression



Protein Purification



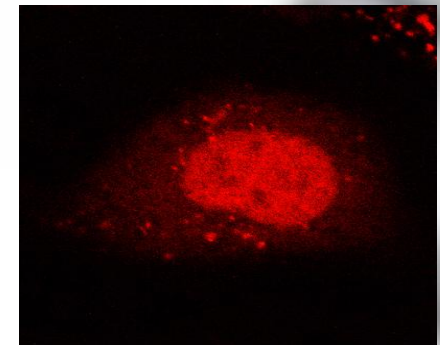
Assay



IL-6 -

IL-6 +

Protein localization/translocation



Organelle Marking

# Two types of cDNA clones

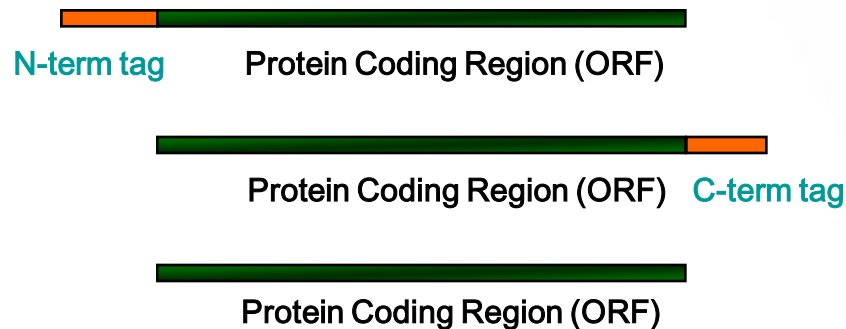
TrueClones (untagged)

Full-length cDNA clones: For native protein over-expression



TrueORFs (tagged)

ORF cDNA clones: For tagged protein over-expression



# To tag or not to tag, that is the question!





More Questions:

Which tag(s)?

Where the tag should be?

Which vector?

# Choices on clone construction

	Pros	Cons	
Clone-it-myself	<ul style="list-style-type: none"> <li>In-house molecular biology skill building</li> <li>Perceived cost-saving</li> </ul>	<ul style="list-style-type: none"> <li>Resource consumption: Staff, time, reagents</li> <li>Risk of failure in obtaining the clone</li> </ul>	
Acquire clones as raw material for refinement	<ul style="list-style-type: none"> <li>Reduced time on cDNA cloning</li> <li>Perceived cost-saving</li> </ul>	<ul style="list-style-type: none"> <li>Source clone may be faulty</li> <li>Molecular expertise needed</li> </ul>	
Purchase an application-ready cDNA clone	<ul style="list-style-type: none"> <li>Minimal molecular biology expertise needed</li> <li>Immediate application and quick results</li> </ul>	<ul style="list-style-type: none"> <li>Upfront investment on clone purchase</li> </ul>	
Have it synthesized	<ul style="list-style-type: none"> <li>Get the exact sequence you need</li> <li>In the exact expression vector you want</li> </ul>	<ul style="list-style-type: none"> <li>Custom rather than available off the shelf</li> </ul>	

# OriGene's products cater to your needs



cDNA clone types	Encoded proteins	Vectors	Protein verification	Sequence verification	Cost
<b>TrueClone</b> (Human/mouse)	untagged	pCMV6-XL	No	End-sequence ID and size verification  SNPs allowed	\$
<b>TrueORF</b> (Human/Mouse)	Tagged	pCMV-Entry 60 destination vectors	>12,000 Western images	Full-length sequence guarantee  SNPs allowed	\$\$
<b>Gene synthesis</b>  Any species Any variant Any vector	Optimization available  Customized	Customer's choice, including any of the above vectors	no	Full-length sequence as requested	\$\$

# Why TrueORF?

## Inserts

- Verified sequence**
- Genome wide coverage**
- Western blot validation**

## Vectors

- Functional entry vector (Myc-DDK tag)**
- Over 60 destination vectors**
- Easy vector shuttling**

## Post-purchase manipulation

- Application-ready pure plasmid**

## Affordability

- Over 5,000 clones at \$380**

# Protein expression validation

**Not just sequence verification.  
Protein expression validation!**

**RC204576: ORF Clone of Homo sapiens vinculin (VCL) in pCMV6-Entry vector.**

**ORF Size: 3201 bp**

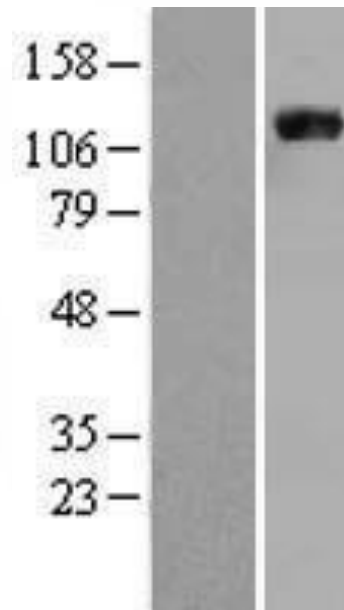
**Tag: C-terminal Myc and DDK tag**

**Predicted protein size: 110KD**

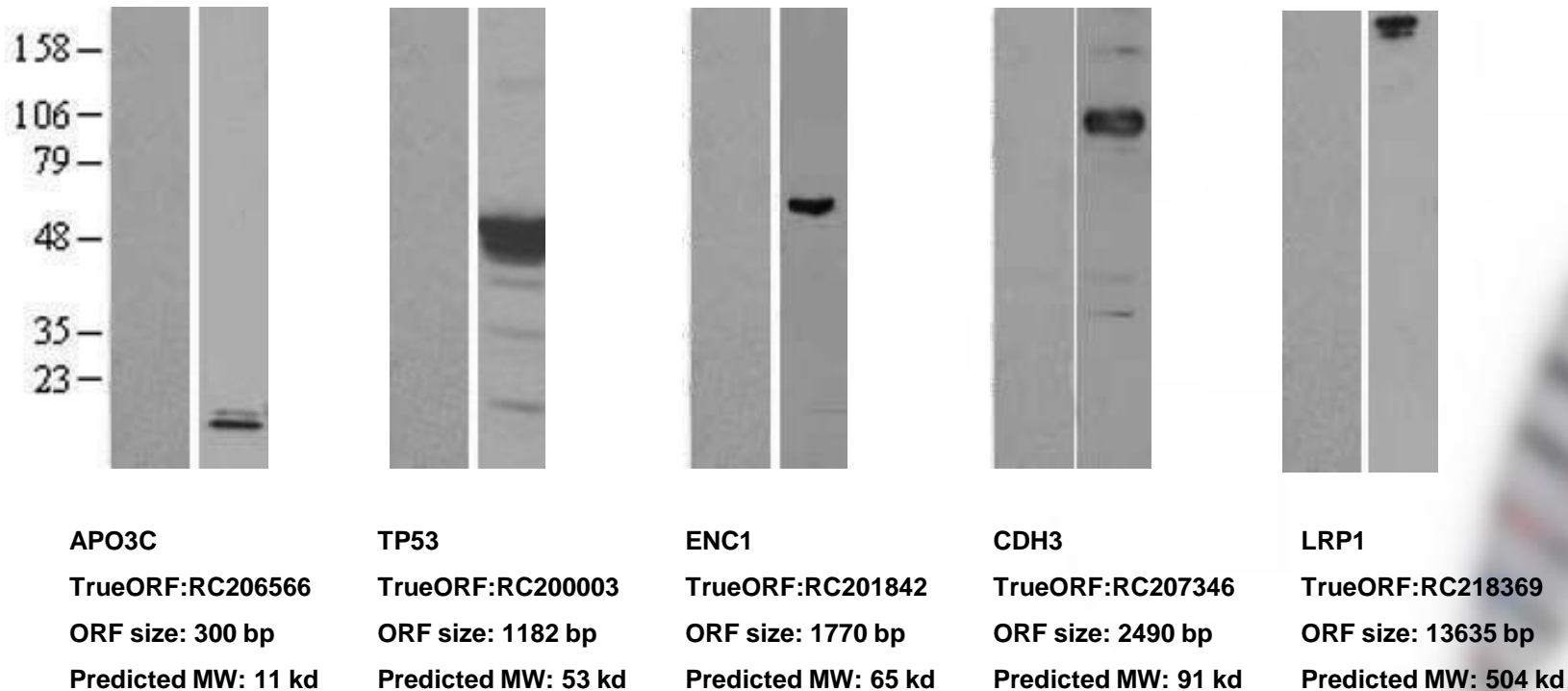
**Protein expression validation using anti-DDK antibody**

**Left: 293T cells transfected with the empty vector**

**Right: 293T cells transfected with RC204576, showing a single 110 KD protein band.**




# >12,000 Western validated ORFs



# TrueORF Gold: Reliable. Flexible. Fast.






 Expression Validated by Western

 Sequence Verified with  
Chromatogram online

 Next-Day Shipment



 TrueORF Gold = Expression Validated + Sequence Verified + Next-day shipment!

SKU	Category	Vector	Description
<a href="#">RC200003</a>	 TrueORF Gold	<a href="#">pCMV6 Entry</a>	Myc-DDK-tagged ORF clone of Homo sapiens tumor protein p53 ( <b>TP53</b> ), transcript variant 1 as transfection-ready DNA NM_000546.2
<a href="#">RC200142</a>	Human ORF	<a href="#">pCMV6 Entry</a>	Myc-DDK-tagged ORF clone of Homo sapiens WD repeat containing, antisense to <b>TP53</b> (WRAP53), transcript variant 1 as transfection-ready DNA NM_018081.1
<a href="#">RC200528</a>	Human ORF	<a href="#">pCMV6 Entry</a>	Myc-DDK-tagged ORF clone of Homo sapiens guanidinoacetate N-methyltransferase (GAMT), transcript variant 1 as transfection-ready DNA NM_000156.4
<a href="#">RC200918</a>	Human ORF	<a href="#">pCMV6 Entry</a>	Myc-DDK-tagged ORF clone of Homo sapiens tumor protein p53 inducible protein 13 ( <b>TP53I13</b> ) as transfection-ready DNA NM_138349.2
<a href="#">RC201032</a>	Human ORF	<a href="#">pCMV6 Entry</a>	Myc-DDK-tagged ORF clone of Homo sapiens <b>TP53</b> regulated inhibitor of apoptosis 1 (TRIAP1) as transfection-ready DNA NM_016399.2
<a href="#">RC201737</a>	 TrueORF Gold	<a href="#">pCMV6 Entry</a>	Myc-DDK-tagged ORF clone of Homo sapiens etoposide induced 2.4 mRNA (EI24), transcript variant 1 as transfection-ready DNA NM_004879.3
<a href="#">RC201839</a>	Human ORF	<a href="#">pCMV6 Entry</a>	Myc-DDK-tagged ORF clone of Homo sapiens tumor protein p53 inducible protein 3 ( <b>TP53I3</b> ), transcript variant 1 as transfection-ready DNA NM_004881.2
<a href="#">RC201842</a>	Human ORF	<a href="#">pCMV6 Entry</a>	Myc-DDK-tagged ORF clone of Homo sapiens ectodermal-neural cortex (with BTB-like domain) (ENC1) as transfection-ready DNA NM_003633.1
<a href="#">RC202405</a>	 TrueORF Gold	<a href="#">pCMV6 Entry</a>	Myc-DDK-tagged ORF clone of Homo sapiens prostaglandin E synthase (PTGES) as transfection-ready DNA NM_004878.3
<a href="#">RC202634</a>	 TrueORF Gold	<a href="#">pCMV6 Entry</a>	Myc-DDK-tagged ORF clone of Homo sapiens reprim, <b>TP53</b> dependent G2 arrest mediator candidate (RPRM) as transfection-ready DNA NM_019845.2
<a href="#">RC202738</a>	 TrueORF Gold	<a href="#">pCMV6 Entry</a>	Myc-DDK-tagged ORF clone of Homo sapiens serum amyloid A1 (SAA1), transcript variant 2 as transfection-ready DNA NM_199161.2
<a href="#">RC203471</a>	Human ORF	<a href="#">pCMV6 Entry</a>	Myc-DDK-tagged ORF clone of Homo sapiens MAD1 mitotic arrest deficient-like 1 (yeast) (MAD1L1), transcript variant 1 as transfection-ready DNA NM_003550.2

# TrueORF Gold

Expression-validated cDNA Clones

## TP53 (NM\_000546) Human cDNA ORF Clone

Specifications		Related Products	Product Manual	FAQs	
Cat. No.	Accn	Description	Amount	Price	Shipping
RC200003	NM_000546	Myc-DDK-tagged ORF clone of Homo sapiens tumor protein p53 (TP53), transcript variant 1 as transfection-ready DNA	10ug	\$680	Immediate
<p>Also available as <a href="#">GFP Tagged cDNA Clone</a></p> <p> <a href="#">Clone Modification Request</a> <a href="#">Rapid Shuttleing Kit</a> <a href="#">Stable Cell Line Service</a> </p>					

### Also for TP53 (NM\_000546)

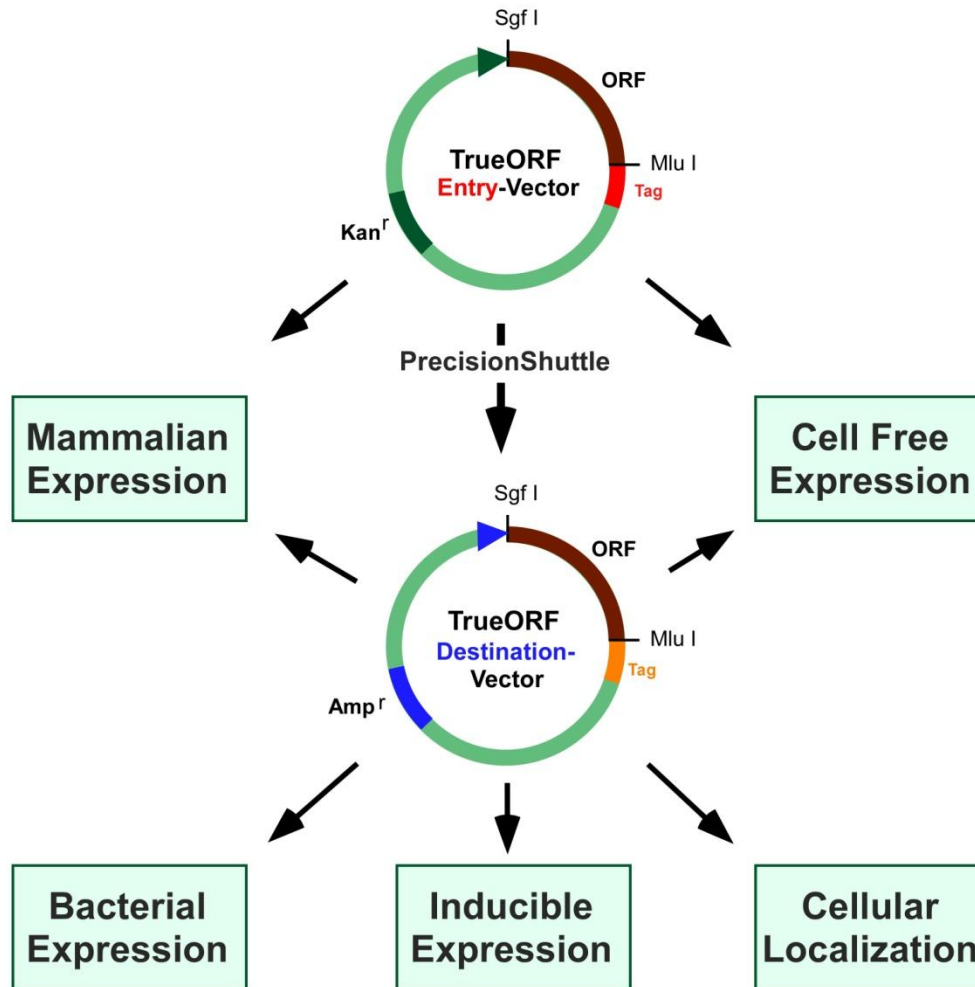
- [cDNA Clone](#)
[shRNA](#)
[Lysate](#)
[Protein](#)
[Antibody](#)

### OriGene TrueORF Data

Vector:	<a href="#">pCMV6 Entry</a>	Tag: C-terminal MYC/DDK <a href="#">Anti-Myc/DDK antibody</a>	<b>Western validation with an anti-DDK antibody *</b> L: Control HEK293 lysate R: Over-expression lysate 
Sequence Data:	<a href="#">ORF Nucleotide Sequence</a> <a href="#">CHROMATOGRAMS</a> <a href="#">Protein Sequence</a>	ORF Size: 1182 bp Predicted Protein MW: 43.5 kDa	
Restriction Sites:	SgfI-MluI <a href="#">Cloning Scheme for this gene</a>		
OTI Annotation:	This clone expresses the complete ORF with an expression tag.		
OTI Disclaimer:	Our molecular clone sequence data has been matched to the reference identifier above as a point of reference. Note that the complete sequence of our molecular clones may differ from the sequence published for this corresponding reference, e.g., by representing an alternative RNA splicing form or single nucleotide polymorphism (SNP).		
Product Components:	The ORF clone is shipped in a 2-D bar-coded Matrix tube as 10 ug transfection-ready dried plasmid DNA.		

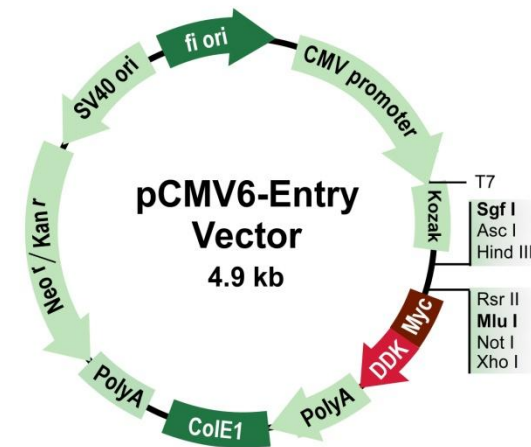
# **PrecisionShuttling System: Comparing to Gateway**

# PrecisionShuttle



# Fully functional entry vector

1. Entry vector is a CMV expression vector
  - Ready for mammalian expression
  - C-terminal Myc-DDK fusion tag
2. Entry vector has a neomycin selection marker
  - Stable expression cell line can be established
3. Entry vector has a T7 promoter upstream of the ORF
  - Protein expression in cell-free system



\*DDK is the same as FLAG tag

# A superior shuttling system

Feature	PrecisionShuttle	Gateway
Entry vector	Expression-ready: mammalian and cell-free	Non-expression vector
Shuttling costs	Restriction enzymes (<\$1/rxn)	Clonase (\$8/rxn)
IP restrictions	No	Yes
Cloning of large (>6kb) ORFs	Easy	Difficult
<b>Content! Content! Content!</b>	37,000 TrueORF clones	Clone the gene yourself

# 60 Destination vectors

## One insert, 60 utilities:

Tag location	N- or C-terminal
Epitope tag	Myc, DDK, HA, His, Fc, GST, His
Fluorescent protein tag	GFP, RFP, YFP, mKate, CFP, BFP, FP602, FP635
Antibiotic resistance	neomycin, puromycin, hygromycin, blasticidin
Expression host	mammalian, E.coli
Inducible vector	pTUNE

[Destination vector page](#)

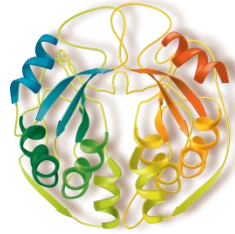
# TrueORFs are transfection-ready



- Plasmid DNA purified through ion-exchange columns
- Extremely low endotoxin
- Delivered as 10 or 20ug DNA for immediate transfection/transformation

# TrueORF-derived products

## Protein Production From HEK293T

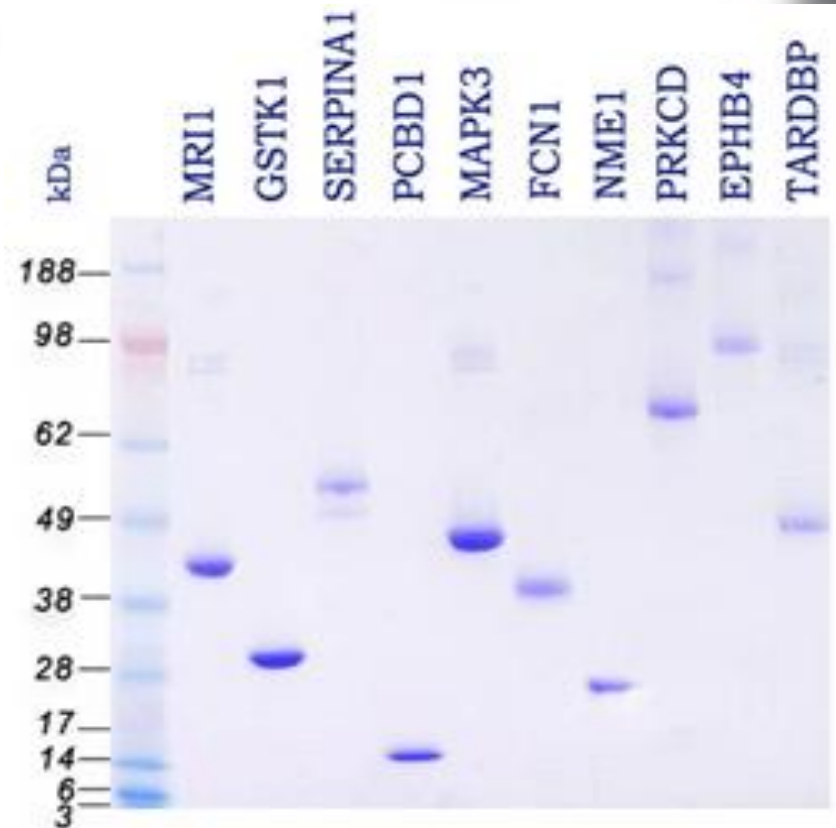


12,000 over-expression lysates

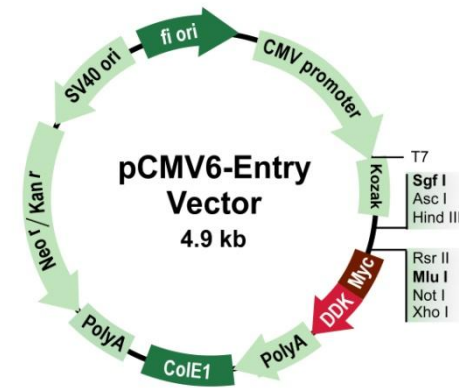
5,000 recombinant proteins

3000 heavy-isotope labeled  
proteins as mass spec standards

Mouse monoclonal antibodies

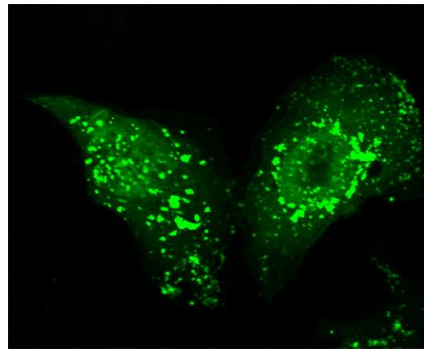


## Protein purification using anti-tag antibody and *in vitro* function assays

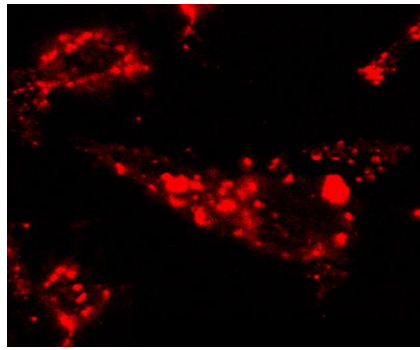


GEN1 TrueORF clone was used to produce DDK-tagged GEN1 protein. Affinity-purified GEN1 was shown to be functional in resolving the Holliday junction *in vitro*.

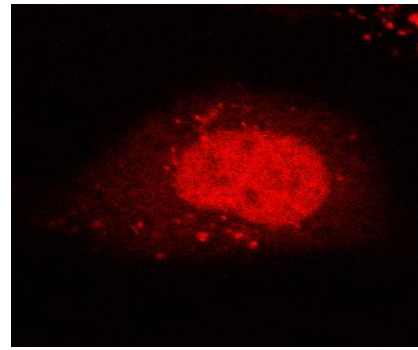
## Cell organelle marking



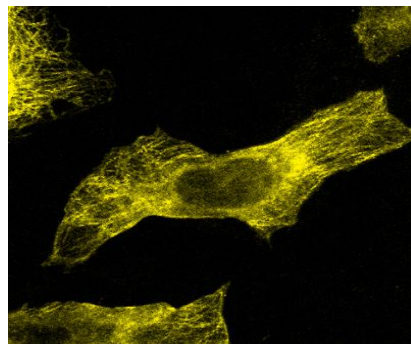
**Endosome**  
(RAD-GFP)



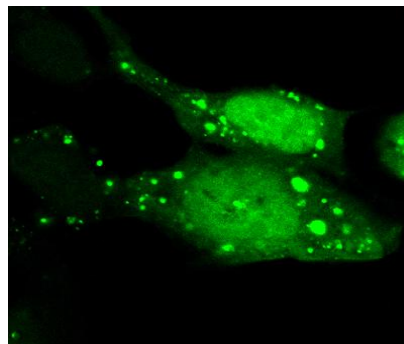
**Lysosome**  
(LAMP-RFP)



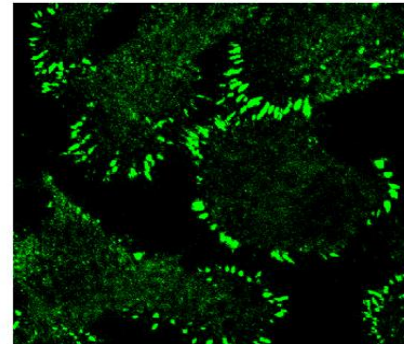
**Nuclear**  
(Cyclin D1-RFP)



**Cytoskeleton**  
(Tubulin-YFP)

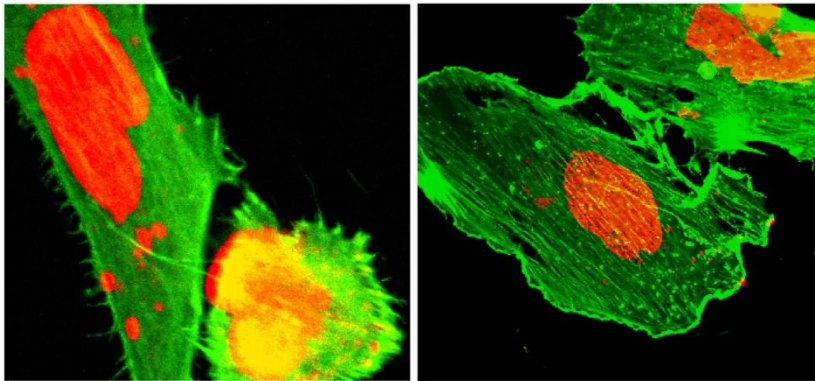


**Autophagosome**  
(LC3-GFP)

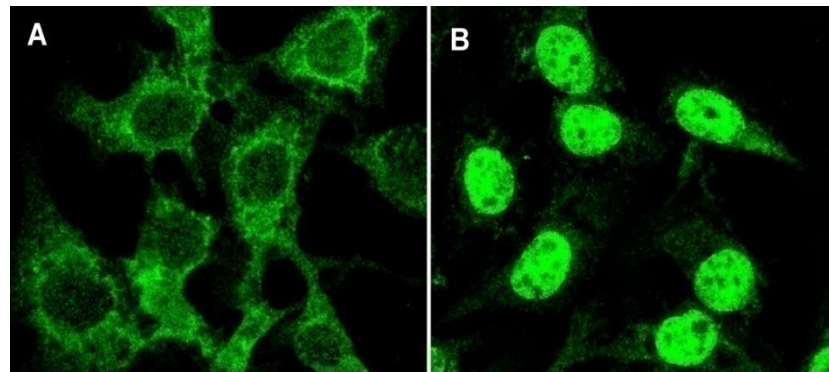
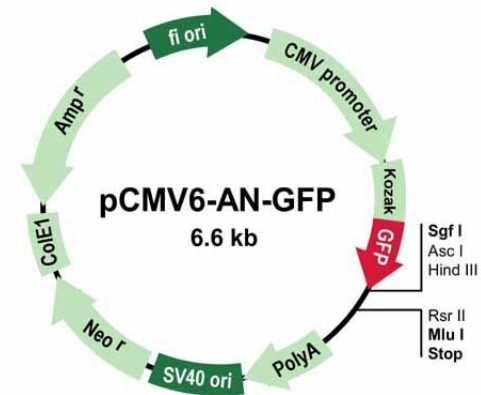


**Focal Adhesion**  
(FAK-GFP)

## Intracellular protein monitoring



Visualization of filopodia and stress fiber formation



IL-6 -

IL-6 +

STAT3 Translocates into nucleus

## Pathway Study or HTP Screening

- **Largest selection:** TrueORFs and TrueClones
- **Quality:** Sequence verified and expression-ready
- **Convenient:** Immediate delivery as transfection-ready plasmid DNA
- **Maximal saving:** 20-80% discount from list price

[http://www.origene.com/cdna/clone\\_set.aspx](http://www.origene.com/cdna/clone_set.aspx)

# cDNA clone sets

## Pathway Study or HTP Screening

Clone Sets	TrueORF (Myc-DDK Tagged)	TrueClone (Untagged)
GPCR	<a href="#">View List</a>	<a href="#">View List</a>
Kinase-deficient mutant	<a href="#">View List</a>	<a href="#">View List</a>
Protein Kinase	<a href="#">View List</a>	<a href="#">View List</a>
Secreted	<a href="#">View List</a>	<a href="#">View List</a>
Transmembrane	<a href="#">View List</a>	<a href="#">View List</a>
Human Autoimmune & Inflammatory Response	<a href="#">View List</a>	<a href="#">View List</a>
Human Stem Cell	<a href="#">View List</a>	<a href="#">View List</a>
Angiogenesis	<a href="#">View List</a>	<a href="#">View List</a>
Apoptosis	<a href="#">View List</a>	<a href="#">View List</a>
Breast Cancer	<a href="#">View List</a>	<a href="#">View List</a>
Cytokines	<a href="#">View List</a>	<a href="#">View List</a>
Human NFkB Signaling Pathway	<a href="#">View List</a>	<a href="#">View List</a>
Human Tumor Metastasis	<a href="#">View List</a>	<a href="#">View List</a>
Notch	<a href="#">View List</a>	<a href="#">View List</a>
Wnt Pathway	<a href="#">View List</a>	<a href="#">View List</a>

[View all selections...](#)

[Request a quote](#)

[Learn more about OriGene's cDNA clones](#) [OriGene's clone collection in publication](#)



## The Industry Standard in Gene Synthesis

The first company to synthesize a 52KB gene (2007)

The primary supplier for the 1st bacterial genome (2008)

The sole DNA source for the 1st synthetic life by J. Craig Venter Institution (2010)

# Blue Heron product lines

- Codon Optimization for any host
- De Novo Synthesis
- Variant Synthesis
  - SNPs, codon changes, deletions, addition of tags/flags/poly A tails
  - Variant libraries
    - Amino Acid scans, antibody optimization

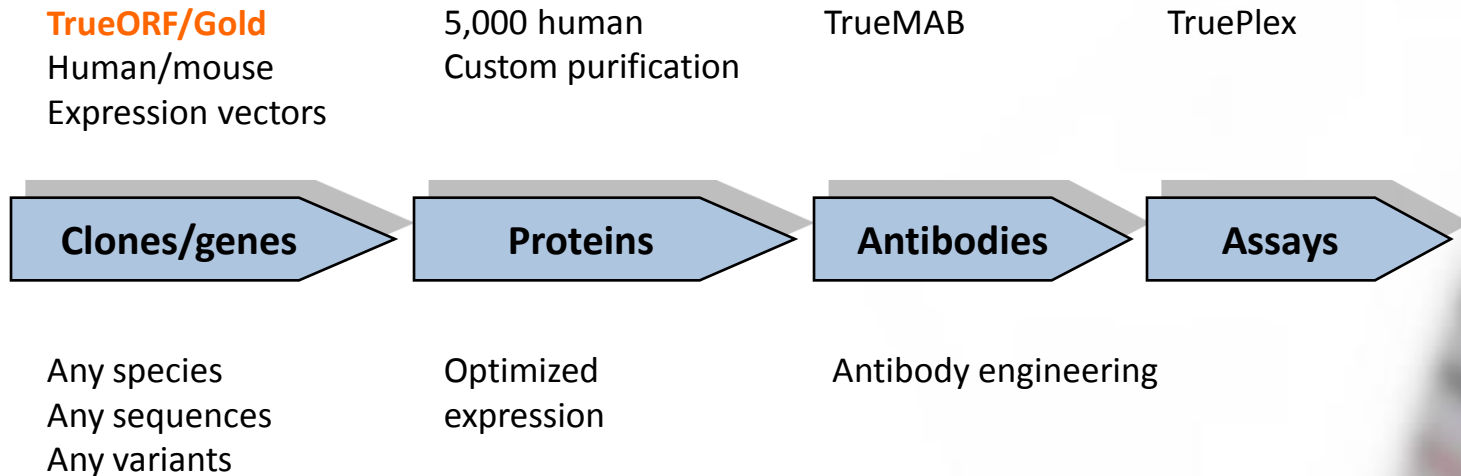
# Blue Heron - synthesis benefits

- Broad Capabilities
- Accuracy is guaranteed
- Confidentiality and IP Retention
- Now offered with all OriGene's PrecisionShuttle vectors.

You are invited to experience Blue Heron's gold standard services with our 2010 Q4 promotion on gene synthesis!

Human and mouse genes or variants  
**\$0.35/bp** up to 2kb\*

# Complete product solutions



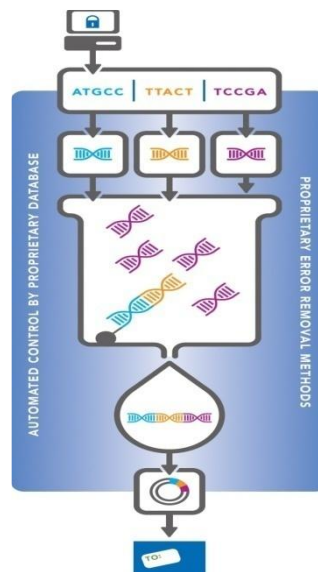
# Beyond protein coding sequences

shRNA plasmids

miRNA expression plasmids

3'UTR reporter plasmids

# Trust your cDNA clones to OriGene



**TrueORF Gold**  
Expression-validated cDNA Clones

**BlueHeron**<sup>®</sup>  
The Gene Synthesis Company

## Questions and Answers



[techsupport@origene.com](mailto:techsupport@origene.com)

1-888-267-4436