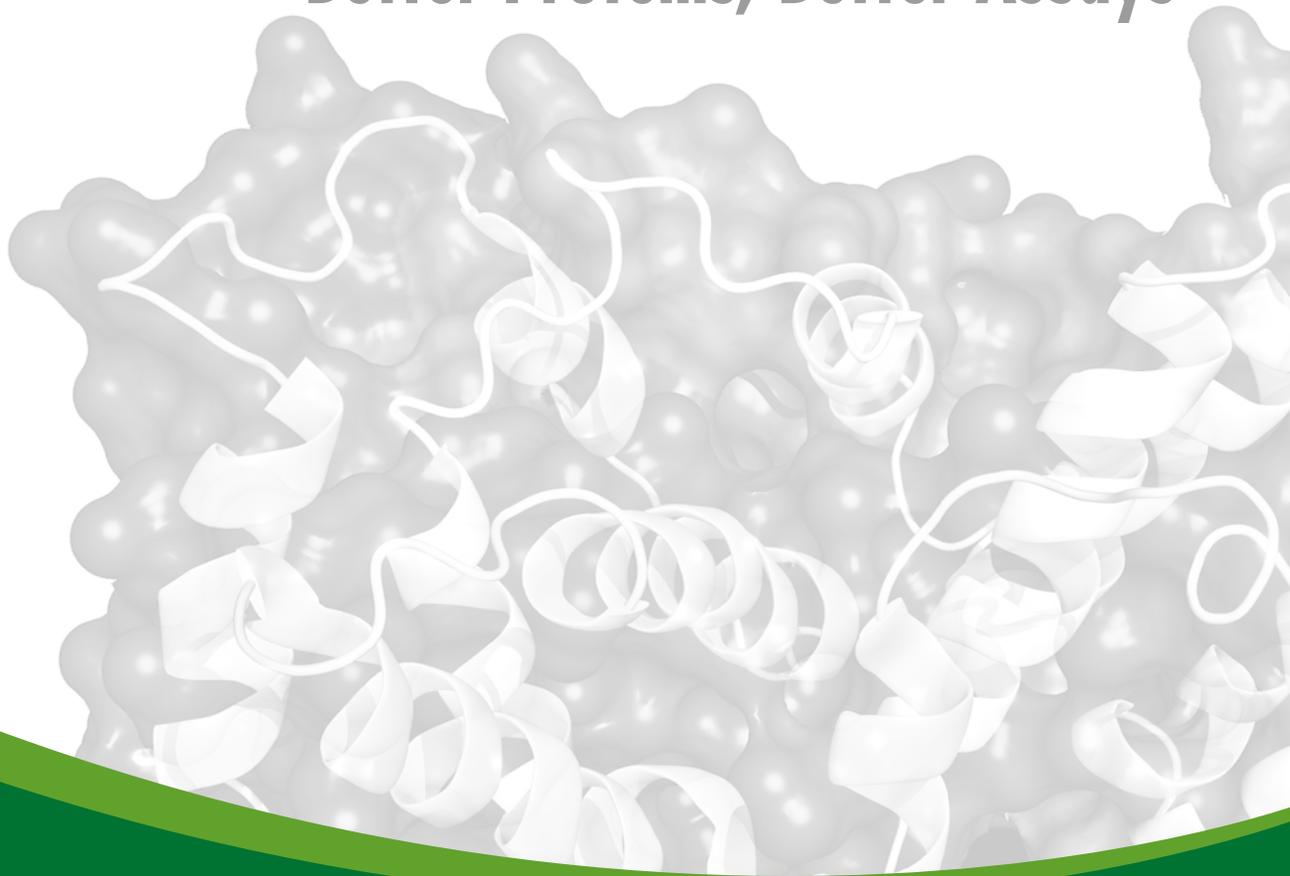


# The Most Comprehensive Source of Recombinant Human Proteins

Better Proteins, Better Assays



Over-expressed Cell Lysates

Purified Human Proteins  
produced in HEK293 Cells

Heavy labeled Proteins as  
Mass Spec Standards

 **ORIGENE**  
[www.origene.com](http://www.origene.com)

# 21,000 Human Proteins as Over-expression Lysates

## Full Length Human Proteins for Functional Studies and Antibody Validation

### Features

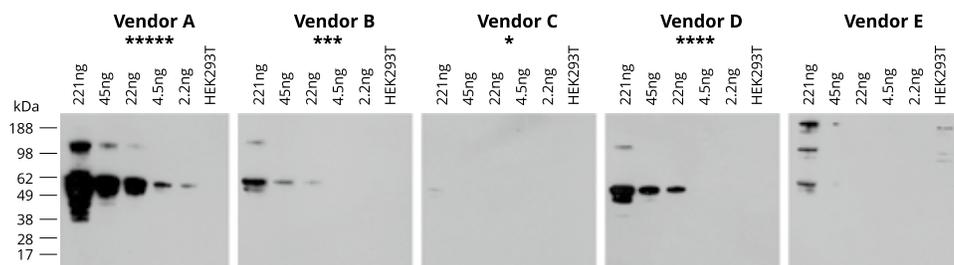
- 21,000 over-expression lysates of full length human proteins
- Expressed in HEK293T cells
- C-terminal Myc-DDK\* tag for easy detection and isolation
- In RIPA buffer with no SDS to best preserve protein activity

### Applications

- Positive controls in Western, immunoprecipitation, etc.
- Standards in ELISA and other assays
- Protein function study

Find all available lysates at  
[www.origene.com/lysates](http://www.origene.com/lysates)

### Application Data #1: Antibody Validation

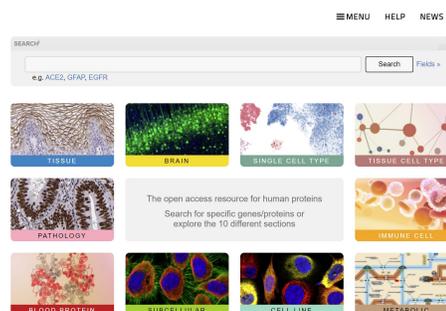


Five commercial antibodies against human P53 were evaluated in Western blot experiments with P53 over-expression cell lysate. P53 protein level in cell lysate was pre-determined using a purified GST-Myc-DDK standard. Lysate was serially diluted before SDS-PAGE and immunoblotting. Antibody quality and star rating is based on P53 protein detection level.

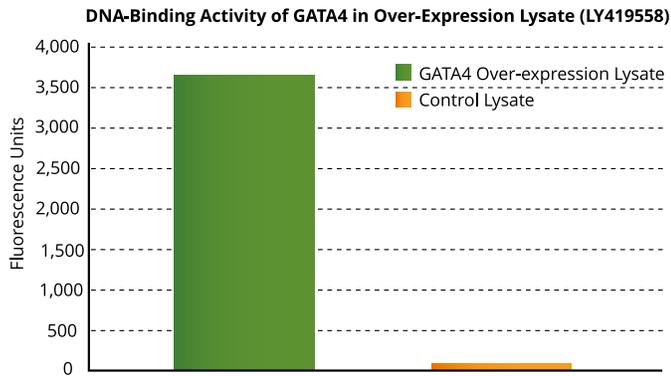
"The Human Protein Atlas project adopted OriGene over-expression lysates and significantly increased our polyclonal antibody Western blot success rate. We are very happy with the results."

– Prof Mathias Uhlen, Royal Institute of Technology (KTH), Stockholm, Sweden

### THE HUMAN PROTEIN ATLAS

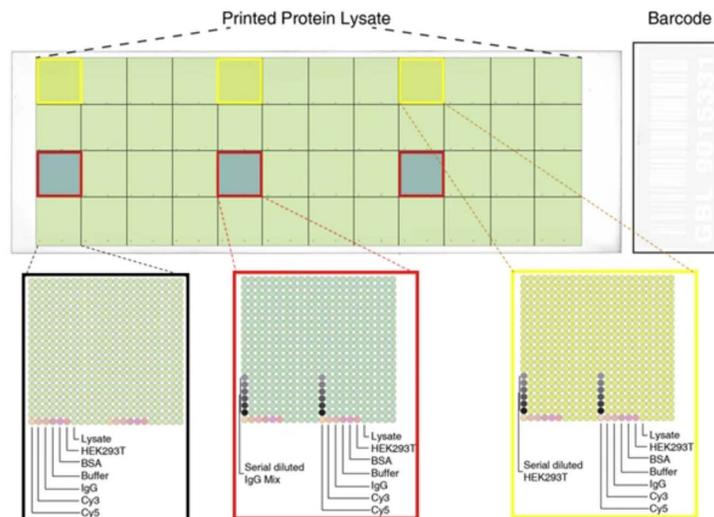


## Application Data #2: Protein Activity Assay – GATA4 (LY419558)



The DNA-binding activity of GATA4 was measured in OriGene's over-expression lysate LY419558 and a control lysate. Three microliters of each lysate were tested with a transcription factor binding assay utilizing GATA4-specific DNA sequences. The high level of activity observed in the over-expression lysate compared to the control lysate demonstrates that the expressed GATA4 is biologically active in the lysate.

## Application Data #3: Protein Arrays Made from Over-expression Lysates



Using OriGene antigen microarray chip technology to decode antibodies that were generated by whole cell immunization

OriGene's high-density protein array is made with more than 10,000 unique over-expression lysates, printed in duplicate, with controls. Such protein arrays can be used in antibody specificity validation, protein-protein interaction, and auto-antibody profiling.

# 29,000 Mammalian Expressed Purified Human Proteins

## Features

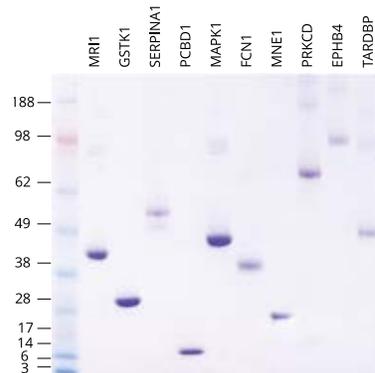
- Produced with TrueORF cDNA clones
- 18,000 full length human proteins
- Expressed in HEK293T cells
- Optimal preservation of protein structure, post-translational modifications and functions
- Large scale production available

## Comparison of Different Expression Systems

	Mammalian	Yeast	Insect cells	E. coli
Protein folding and purification	Optimal	Poor	Low	Poor
Post-translational processing	Yes	Low	Low	No
Authenticity & Bioactivity	Native and active	Poor	Poor	Very poor

## Applications

- Native antigens for optimized antibody production
- Positive controls in antibody based immunoassays, such as ELISA
- Protein-protein interaction
- In vitro* biochemical assays and cell-based functional assays



Read more about our mammalian expressed proteins at [www.origene.com/proteins](http://www.origene.com/proteins)

**Buffer and Storage:** 10% glycerol, 100 mM glycine, 25mM Tris-HCl, pH 7.3. Store at -80°C.

**Purification:** The over-expressed protein was purified using an anti-DDK affinity column

**Tags:** C-terminal Myc-DDK

**Purity:** > 80% as determined by SDS-PAGE

**Concentration:** > 50 ug/ml

**Endotoxin:** < 0.1EU/ug of protein

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

## Custom Protein Expression and Purification Service

- HEK293 cell transient transfection from 1 liter scale and up
- Custom clone construction and optimization
- Multiple expression hosts
- Your choice of protein tags
- Tag-free options are available
- Custom buffer formulation, etc.

**Custom Protein Expression Service Request Form**

Please fill in the blanks below (All fields with an asterisk are required) and click the "Submit" button.

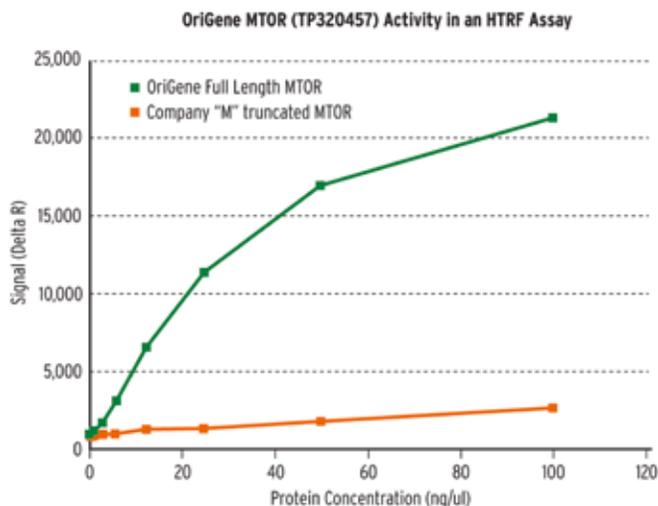
Protein Service Type\*

Protein name\*

DNA or protein sequence of the final product

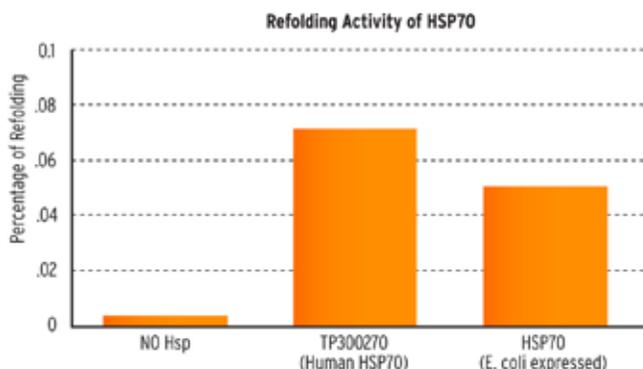
Expression system\*  
 mammalian cell (HEK293 or CHO)  
 E. coli  
 insect (sf9) cells  
 yeast (Pichia Pastoris)

## Application Data #1: Purified Protein Bioactivity (MTOR)



MTOR (mechanistic target of rapamycin; TP320457) activity was measured in a homogeneous time-resolved fluorescent (HTRF<sup>®</sup>) assay. MTOR is a serine/threonine protein kinase that regulates cell growth, cell survival, protein synthesis, and transcription. Varying concentrations of MTOR were added to a reaction mix containing ATP and a biotinylated kinase substrate, and the reaction mixture was incubated to allow the protein to phosphorylate the substrate. HTRF detection reagents were then added, and the fluorescent signal was measured as "Delta R" that is calculated from the ratio of the fluorescent emission intensities of the donor and acceptor fluorophores.

## Application Data #2: Human Cell Produced Protein Is More Potent than E. coli - Derived Protein



OriGene human recombinant HSP70 (TP300270) was compared with E. coli derived HSP70 in a firefly luciferase refolding assay. The percentage of refolding is relative to an identical load of non-denatured luciferase in the reaction. The human cell-produced HSP70 is approximately 30% more active than the bacteria-produced HSP70.

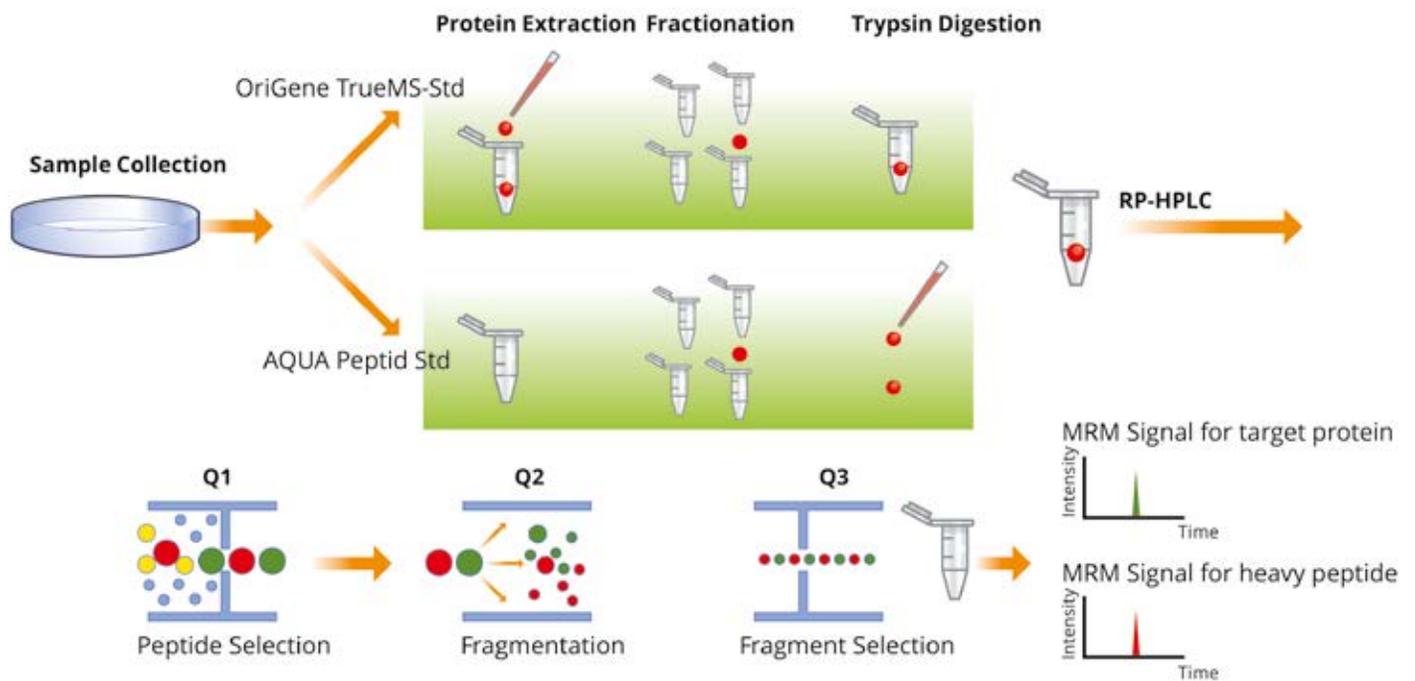
# Heavy-labeled Full-length Protein as MS Standards

## Accurate Quantification of Human Protein Biomarkers

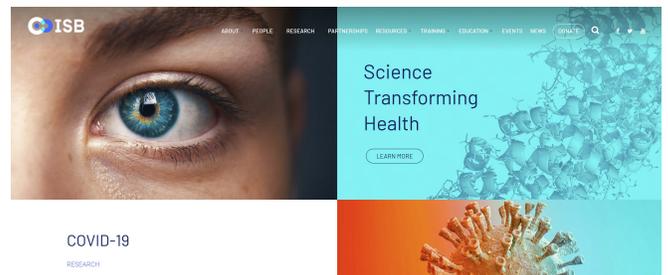
Quantitative mass spectrometry, especially MRM-MS and SRM-MS, plays a significant role in protein biomarker discovery and validation. OriGene offers the service to generate heavy isotope labeled 9,000 proteins as MS standards.

- Spiking at the early stage of sample process for accurate quantification
- Identify the best SRM and MRM transitions through experimental data
- Authentic post-translational modifications by using HEK293T cells
- Higher data consistency than the synthetic peptide internal standards

## Heavy Isotope Labeled Full Length Protein Standard – A Better Solution for Quantitative Mass Spectrometry



OriGene and the Institute for Systems Biology work together to create a proteotypic PeptideAtlas and SRM/MRM mass spectrometry standard database for 5,000 human proteins, greatly accelerate quantitative protein biomarker discovery.



OriGene offers comprehensive, high-quality recombinant custom protein services from different expression systems, in addition to the standard catalog items. Our proprietary protein expression/purification technology maximizes the purity and yield of target proteins in different systems. Our goal is to provide a flexible service program tailored to your needs every step of the way.

We offer a complete 'start to finish' service from the cDNA (gene) cloning step to the protein purification step, and downstream modifications such as tag addition-removal, endotoxin testing/removal, conjugations, and any other services that you may request. Choose OriGene as your reliable partner for your protein-related research, and we can help you accelerate your discovery in a timely and cost-effective manner every step of the way, at a very affordable price.

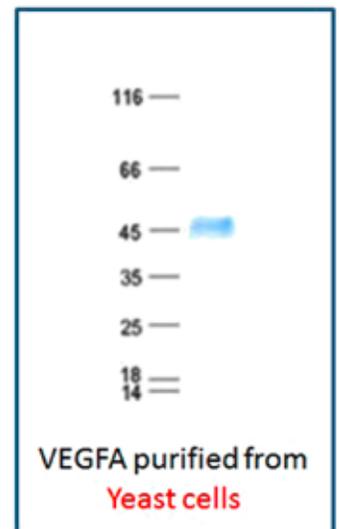
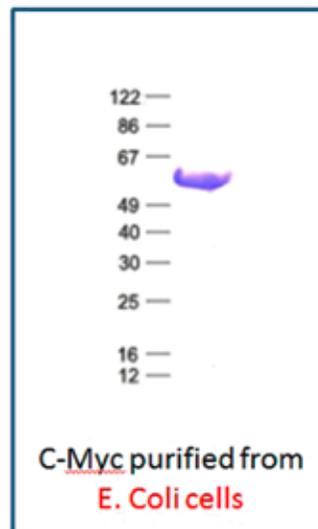
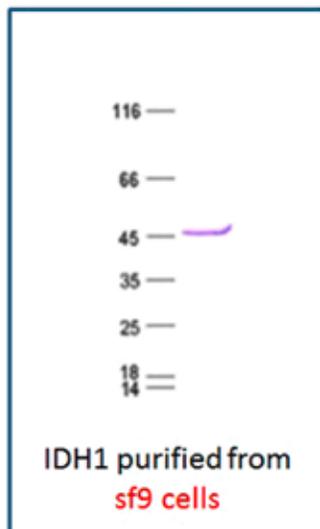
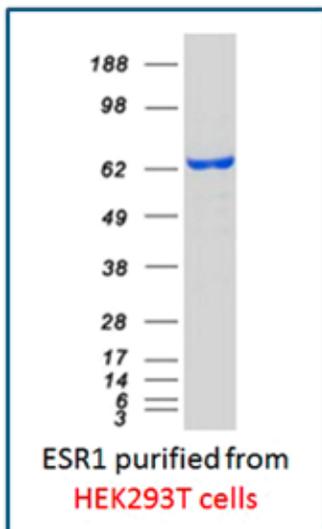
## Service Highlights

- Four Different Cell Based Expression Systems
- Complete Service from cDNA cloning to protein purification
- Tag-free option is available
- Affordable price



[www.origene.com/proteinservice](http://www.origene.com/proteinservice)

## Successful Examples



## **OriGene, Your Partner in Research, Diagnostics and Beyond**

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



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