Over-expressed Cell Lysates
Purified Human Proteins produced in HEK293 Cells
Heavy labeled Proteins as Mass Spec Standards

The Most Comprehensive Source of Recombinant Human Proteins
Better Proteins, Better Assays

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

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

DNA-binding activity of GATA4 was measured in OriGene's over-expression lysate LY419558 and a control lysate. Three microliters of each lysate was 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**

OriGene's high density protein array 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 for auto-antibody profiling.
9,000 Mammalian Expressed Purified Human Proteins

Features

- Produced with TrueORF cDNA clones
- 9,000 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

<table>
<thead>
<tr>
<th></th>
<th>Mammalian</th>
<th>Yeast</th>
<th>Insect cells</th>
<th>E. coli</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein folding and purification</td>
<td>Optimal</td>
<td>Poor</td>
<td>Low</td>
<td>Poor</td>
</tr>
<tr>
<td>Post-translational processing</td>
<td>Yes</td>
<td>Low</td>
<td>Low</td>
<td>No</td>
</tr>
<tr>
<td>Authenticity &amp; Bioactivity</td>
<td>Native and active</td>
<td>Poor</td>
<td>Poor</td>
<td>Very poor</td>
</tr>
</tbody>
</table>

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

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 available
- Custom buffer formulation, etc.

Application Data #1: Purified Protein Bioactivity (MTOR)

MTOR (mechanistic target of rapamycin) (TP320457) activity was measured in a homogeneous time-resolved fluorescent (HTRF©) 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 fluorescent signal was measured as “Delta R” and is a ratio calculated from the fluorescent emission intensities of the donor and acceptor fluorophors.

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

OriGene human recombinant Hsp70 (Tp300270) was compared side-by-side with E. coli derived Hsp70 in a firefly luciferase refolding assay. 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 bacterial produced Hsp70.
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 synthetic peptide internal standard

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

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

www.origene.com/proteinservice

Successful Examples

- ESR1 purified from HEK293T cells
- IDH1 purified from sf9 cells
- C-Myc purified from E. Coli cells
- VEGFA purified from Yeast cells
OriGene, Your Partner in Research, Diagnostics and Beyond

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