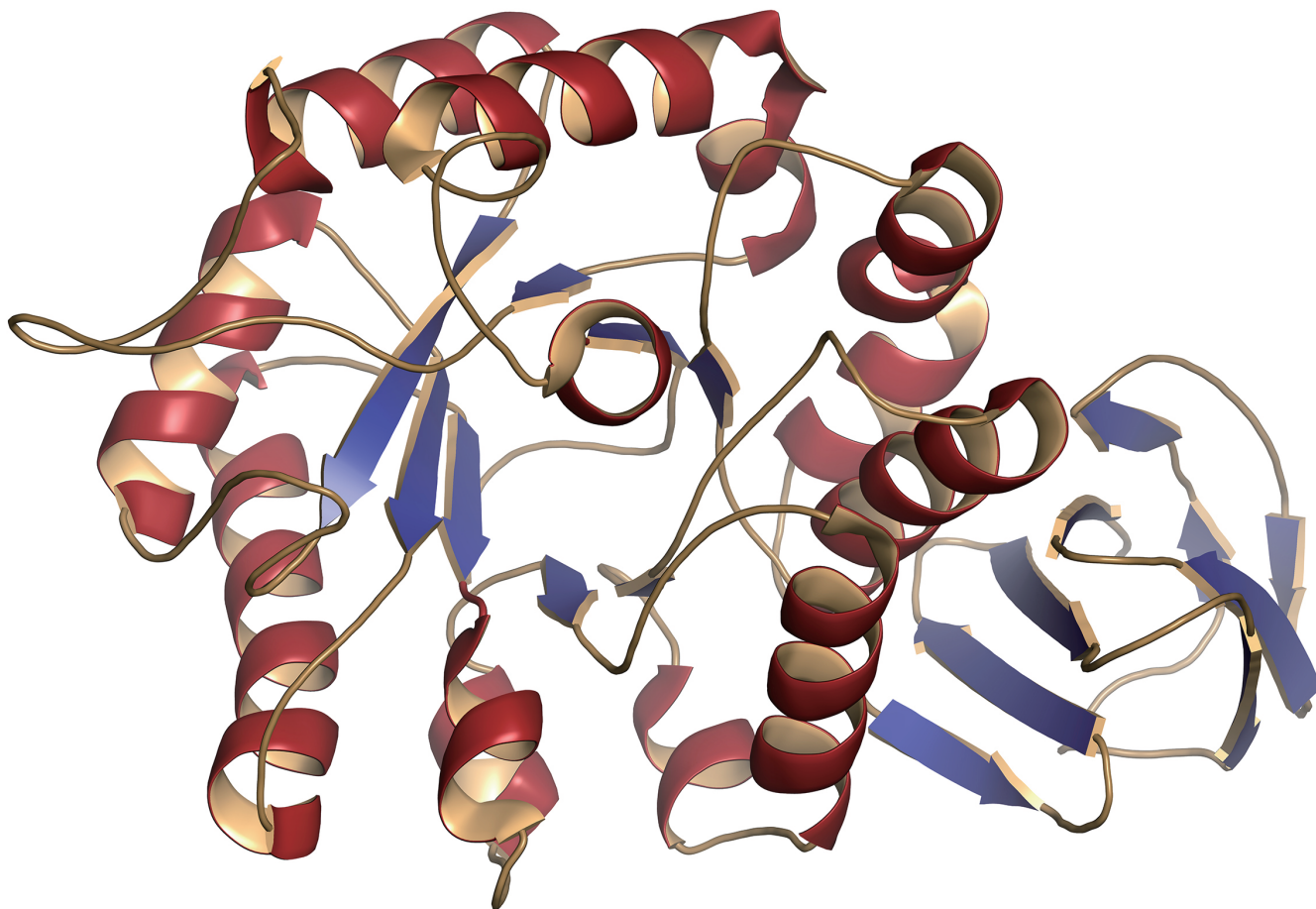


# Recombinant Protein Expression Services

Let our experts help you unleash the full potential of your custom protein expression projects



Bacterial



Mammalian



Insect



Yeast

## We are a Global Leader in Recombinant Protein Production

GenScript is a leading provider of a comprehensive suite of recombinant protein services across different expression platforms. Our expert scientists are invested in partnering with researchers all over the world to accelerate scientific discovery by maximizing the success of their research projects.

**10,000+**

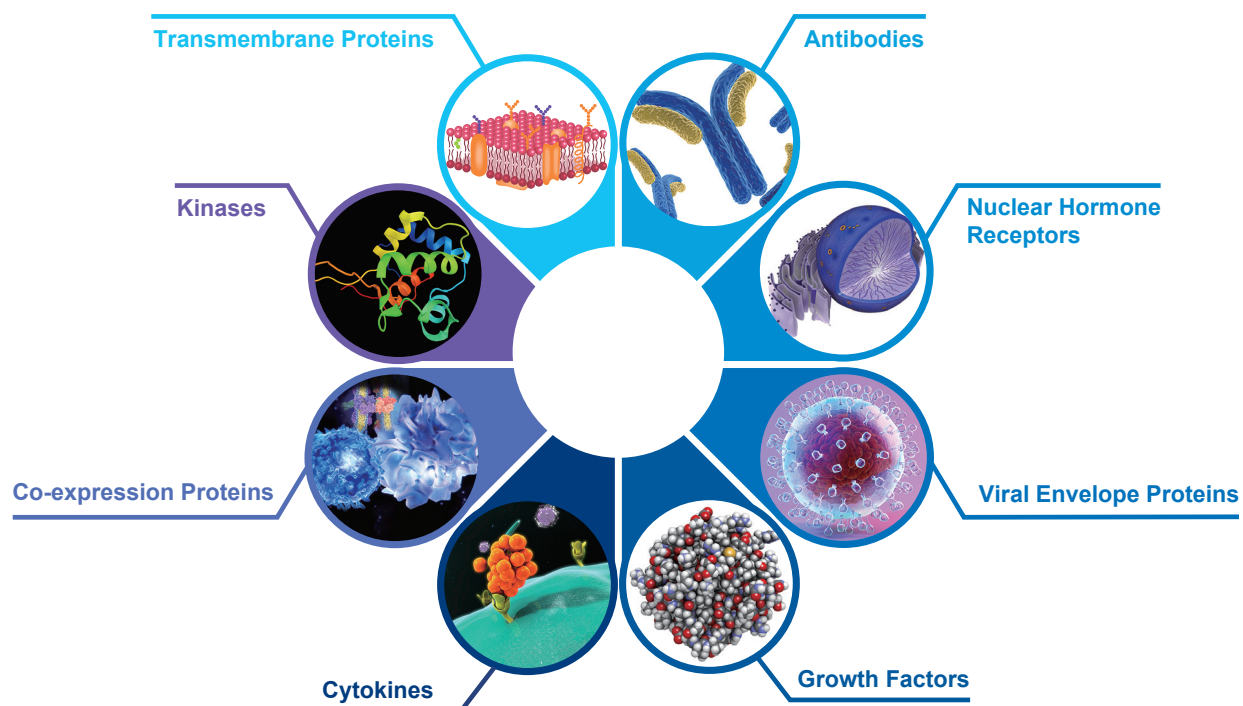
Successful projects delivered

**>95%**

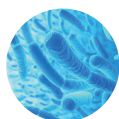
Expression success rate

**15+**

Years of experience



## Our Major Expression Systems



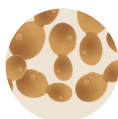
### Bacterial

Expression in  
*E. coli* and *B. subtilis*



### Mammalian

Expression in HD-HEK293,  
or HD-CHO cells



### Yeast

Expression in  
*P. pastoris*



### Insect

Expression in  
SF9 cells

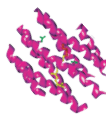
## Our Straightforward & Streamlined Workflow



Secure online submission of  
gene sequences



Gene synthesis  
and cloning



Protein expression  
and purification

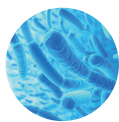


Multiple QC  
measurements



Fast delivery

## Bacterial Expression



Bacterial expression systems are well understood and provide researchers with a simple, rapid, and high-yielding method for recombinant protein production. GenScript offers two types of bacterial expression services - BacPower™ Customized, and BacPower™ Guaranteed Bacterial protein expression packages.

### BacPower™ Customized Protein Expression (SC1318)

Our customized service packages are ideal for challenging proteins such as membrane proteins, toxins, ion channels, or proteins that have specific experimental requirements (e.g. special protocols, customer-provided DNA samples, etc.).

#### Customized Package features

- **Flexible** service that can be tailored to your needs
- **Affordable** with **fast turnaround time**
- **Two expression systems** available to choose from:
  - *E. coli*, and *B. subtilis* (has GRAS designation)

#### BacPower™ Customized Bacterial Protein Expression

Expression Package	Customer Provides	Deliverables	Delivery Time
BacPower Customized Bacterial Protein Expression (SC1318)	Target sequence (DNA or protein)/DNA template/expression construct	Pure, recombinant protein as specified by the customer	Depending on project complexity, it can be as short as 6 weeks

#### Comprehensive service offerings

Gene Synthesis	Subcloning	Expression Optimization	Pilot scale protein expression and purification	Protein Refolding	Tag Removal
SDS-PAGE & Western Blot	HPLC	Mass Spec	LC-MS/MS coverage	Size-Exclusion Chromatography	N-terminal sequencing
Endotoxin Removal	Multiple-Step Protein Purification	Isotope-Labeled Protein Production	Large-Scale Protein Production	Protocol Transfer	Protein Activity Assay

### BacPower™ Guaranteed Protein Expression (SC1253)

Zero-risk, best value package for target proteins under 100 kDa in an *E. coli* expression system. This package is recommended for research applications in immunology, antibody drug discovery, and recombinant vaccine development.

#### Guaranteed Package features

- Includes **gene synthesis** at no additional cost
- Guaranteed recombinant protein **amount** and **purity**
- **Competitive pricing** and **fast turnaround time**

#### BacPower™ Guaranteed Bacterial Protein Expression

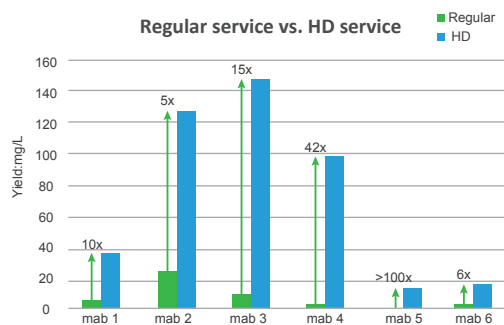
Tag	Purity	Catalog Number	Length	Price (3mg)	Additional protein (up to 10 mg)	Timeline (weeks)	Endotoxin Level Option
Small tag	85%	SC1253-85T-500	≤500 amino acids	Starting from \$1600	\$100/mg	4	≤1.0EU/ug ≤0.1EU/ug ≤0.01EU/ug
		SC1253-85T-800	>500 amino acids and ≤800 amino acids	\$1920	\$120/mg	5	
	90%	SC1253-90T-500	≤500 amino acids	\$1800	\$115/mg	5	
		SC1253-90T-800	>500 amino acids and ≤800 amino acids	\$2200	\$140/mg	6	

## Mammalian Expression



Mammalian expression systems are ideal for generating proteins with advanced protein folding and post-translational modification requirements. While yields from mammalian expression tend to be modest, GenScript's premier High Density (HD) transient expression service facilitates high-yielding production of recombinant proteins (including antibodies) in both the HD 293F and HD CHO-S expression systems.

### Customized HD Transient Expression Service (SC1806P)



HD Transient Expression service has resulted in yield improvements of 5- to >100-fold for 6 different monoclonal antibodies compared to the regular service.

Our customized mammalian expression service is highly recommended if you require large quantities of functional protein for downstream applications, or to enhance expression of low-expressing proteins.

#### Customized service features

- Choose between **HD-HEK293** and **HD-CHO** expression cell-lines
- **Yield improvements** of up to 100-fold
- **Quick turnaround time**

Customer Provides	Milestones	Timeline	Deliverables
Target sequence (DNA or protein)/DNA template/expression construct	Gene synthesis & Cloning	3 weeks	• Gene in pcDNA3.4
	Expression Evaluation	2 weeks	• Expression Report
	Scale up(1 L-10 L)	3-4 weeks	• Purified protein/rAb QC data

### Recombinant Antibody Expression Services

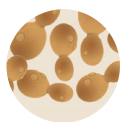
GenScript also offers an array of recombinant antibody (rAb) expression services to suit your every need, such as

- **High Throughput Gene to Antibody expression** – for small-scale pilot studies of 4+ full-length rAbs (including bispecific antibodies)
- **MamPilot Guaranteed expression package** – for rAb expression between 5 – 100 mg for specific antibody formats
- **MamPilot Customized rAb expression package** – for rAb expression that is specifically tailored to your needs



For more comprehensive information regarding our rAb service specifications and catalog numbers, please refer to our separate rAb services brochure and/or webpage.

# Yeast Expression



Yeast fermentation is the most economical eukaryotic expression system for scaled up production of both secreted and intracellular proteins that require post-translational modifications, including humanized antibodies.

## YeastHIGH Expression & Purification Services (SC1257)

GenScript's YeastHIGH yeast fermentation and expression services utilize a proprietary fermentation technology for high-yield and high quality recombinant protein production in yeast.

### Customized Package features

- **Gram-level protein production:** Suitable for customized production of industrial enzymes
- **High yield:** increase the yield of your protein 2x compared to *E. coli*
- **Stable production process:** target protein expression cassette is integrated into the genome for stable protein expression

Customer provides	Steps	Description	Timeline*	Deliverables
Target sequence (DNA or protein)/ DNA template/ expression construct	① Gene synthesis & Subcloning (optional)	<ul style="list-style-type: none"> <li>• Subcloning into appropriate expression vector</li> <li>• Plasmid maxi preparation</li> <li>• Construct linearization</li> </ul>	2 weeks	Construct report
	② Expression & evaluation	<ul style="list-style-type: none"> <li>• Transformation of linear construct into appropriate host</li> <li>• Confirmation of positive transformants via PCR</li> <li>• Expression confirmation</li> <li>• SDS-PAGE gel and/or Western blot</li> </ul>	2 weeks	Expression data
	③ 1 L expression & purification	<ul style="list-style-type: none"> <li>• 1 L yeast culture expression</li> <li>• One-step purification, or additional purification to reach ≥90% purity</li> <li>• QC* by SDS-PAGE, Western blot and LC-MS/MS</li> <li>• coverage</li> </ul>	2 weeks	<ul style="list-style-type: none"> <li>• Purified proteins</li> <li>• QC report</li> </ul>
	④ Large Scale protein production & purification (optional)	<ul style="list-style-type: none"> <li>• Large-scale production up to 2,000 L (Employs fermenters and TFF large-scale filtration system)</li> <li>• Deliverables available at ≥90% purity or higher</li> <li>• Tag removal</li> </ul>	2 weeks	<ul style="list-style-type: none"> <li>• Yeast paste/</li> <li>• purified proteins</li> <li>• QC data</li> </ul>

YeastHIGH Fermentation Services for volumes from 5 L to 500 L are also available!

## Quotations & Ordering



Order online: [www.genscript.com/online\\_request/protein\\_quick\\_quote](http://www.genscript.com/online_request/protein_quick_quote)

Order by Email: [protein@genscript.com](mailto:protein@genscript.com)

Phone: 1-877-436-7274 (Toll-Free) 1-732-885-9188

Order by Fax: 1-732-210-0262 1-732-885-5878

## Insect Expression



A baculovirus expression system has several advantages over *E. coli* such as improved protein solubility, the ability to incorporate post-translational modifications, and higher yields of secreted proteins. For customers who prefer a eukaryotic expression system, and are exploring lower-cost alternatives to mammalian expression we recommend considering our BacuVance™ baculovirus expression system.

### BacuVance™ Baculovirus Expression Package (SC1810)

GenScript's proprietary baculovirus expression system BacuVance was developed by expert scientists for virus production and expression of recombinant proteins from baculovirus-infected insect cells. GenScript can provide you with free, advanced codon optimization specific to Sf9, Sf21, Hi-5, and S2 insect cell lines, to further enhance the expression of your protein.

Steps	Specifications	Timeline#	Deliverables
<b>①</b> Gene synthesis and/or subcloning	<ul style="list-style-type: none"> <li>Gene synthesis and codon optimization using our proprietary platforms (optional)</li> <li>Subcloning into 1 or more expression vectors</li> </ul>	2 weeks	Construct(s) report
<b>②</b> Virus generation	<ul style="list-style-type: none"> <li>Generation of recombinant Bacmid DNA</li> <li>Transfection of insect cell with recombinant Bacmid DNA</li> <li>Generation of P1 stock (low titer), P2 stock (high titer), and determination of virus titer by quantitative-PCR</li> <li>Protein expression verification using anti-His or anti-GST antibody</li> </ul>	2 weeks	5 ml, >10 <sup>8</sup> pfu/ml virus stock
<b>③</b> Pilot expression and purification evaluation	<ul style="list-style-type: none"> <li>Infection of insect cells with P2 stock</li> <li>1-step affinity purification</li> <li>SDS-PAGE gel and Western blot</li> </ul>	1.5 weeks	Expression data
<b>④</b> 1 L expression and purification	<ul style="list-style-type: none"> <li>1 L insect cell expression</li> <li>1-step affinity purification</li> <li>QC*</li> </ul>	1-2 weeks	Purified proteins QC* data

**Baculovirus preparation services (SC1840) and biomass preparation services (SC1835) are also available!**

Our flexible expression platform also allows you to tailor project deliverables to your exact need. Simply customize your project to terminate at different milestones!

- **Baculovirus preparation service (SC1840):** Gene synthesis and virus generation as represented by steps 1 & 2 in the table above. Virus stock, volume, and titers can also be customized.
- **Biomass preparation service (SC1835):** Gene synthesis, virus generation, and expression as represented by steps 1 – 3 in the table above.

## Our Technologies

### OptimumGene™

- Patented gene design & codon optimization technology that helps maximize protein expression
- Technology generates and analyzes 10,000 candidate sequences in one round of analysis
- Algorithm eliminates codon bias and optimizes a variety of parameters that are critical to protein transcription, translation, and folding
- Complex sorting matrix selects the best sequence for each customized request
- Over 50,000 sequences optimized in all major expression systems

### FoldArt™

- Proprietary *in vitro* solubilization & refolding platform to recover pure protein from inclusion bodies generated as a result of high protein expression
- Includes high-hydrostatic pressure techniques, small-molecule additives, and column-based refolding methods to recover soluble protein at high purity

### ToxinEraser™

- Proprietary endotoxin removal technology based on modified polymyxin B affinity matrix
- Facilitates downstream recombinant protein applications and pharmaceutical processes that require endotoxin removal

### Solubility Tags

- Variety of *E. coli* expression vectors bearing unique solubility tags specifically for soluble recombinant protein production developed by GenScript's expert production scientists
- Over 95% success rate for *E. coli* projects – we guarantee soluble protein delivery where others fail

## How to Order

Submit quotation request by e-mail, fax or online quotation system

Our Technical Account Manager will contact you within 24 hours to finalize quote

You review and approve final order details and price

You provide credit card/PO information and order is placed

Project is initiated immediately

Our Project Manager will be in contact with you to provide updates

## Quotations & Ordering



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