

# CUSTOM PROTEIN & ANTIBODY EXPRESSION

## Overview of Capabilities

The Protein Science team at ChemPartner occupies a specialty facility equipped with state of the art instruments and technology for expression and purification to produce high-quality recombinant antibodies and proteins in HEK293 or CHO cells as well as non-mammalian expression systems.

With a cell culture capacity of >300 liters/week, protein products (multiple gram quantity) can be produced in a few weeks. With more than 40 sets of purification units, multiple purifications are processed in parallel.

In the past 2 years, we have successfully completed 200+ protein expression and purification projects for our international clients as well as delivered 1,000+ recombinant proteins and antibodies in various scales.

Scheduled Experiments	Deliverables	Timeline
Gene synthesis and vector construction	Technical Report	2-3 weeks
Small scale expression and purification test	Technical Report	2 weeks
Scale-up and QC (SDS-PAGE, SEC-HPLC) (Optional: LC-MS, RP-HPLC)	Technical Report and Final Product	3 weeks

### Sample Submission

- Protein sequence or cloned vector

### Deliverables

- Protein/antibody with >95% purity
- Documented methods and testing conditions
- Quality control statement (SDS-PAGE, SECHPLC);  
(Optional: LC-MS, RP-HPLC)

### Related Services

- Protein production in E. Coli system
- Protein production in Yeast system
- Protein production in Baculo-Virus system

# Recombinant Antibody Expression & Purification in Mammalian Cell System

## Vector Design

- Construct mammalian expression vector, choice of human IgG1, 2, 3, or 4 and mouse IgG1, 2a, 2b, or 2c isotype
- Codon optimization & Gene synthesis

## Plasmid Preparation

- Sequence verification by DNA sequencing
- Plasmid DNA preparation for transfection

## Large-Scale Expression

- Large-scale transient transfection and expression, up to 300L
- Multi-step purification 100ml (0.5-5 mg)

## Pilot-Scale Expression

- Expression detection (100ml), choice of CHO or HEK293 cells
- Pilot-scale expression and purification, 100ml (0.5-5 mg)

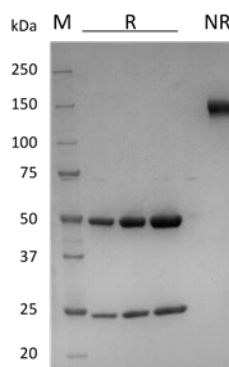
## Quality Control

- Product QC analysis, SDS-PAGE, SEC-HPLC, RP-HPLC, LC-MS
- Endotoxin level determination

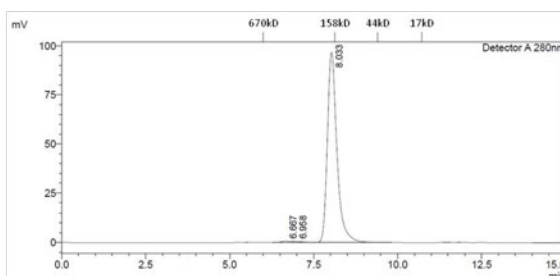
## Case Study

Antibody Name	Isotype	Host Cell	Exp. Volume	Quantity	SEC-HPLC	Endotoxin
XXX	hulgG1	CHO	20 L	>1900 mg	5.58 min 100%	0.01 EU/mg

- Transient transfection and expression in 50L CellBag using Wave system
- 2 g hIgG1 Ab recovered after affinity and SEC purification
- Completed in 8 weeks



SDS-PAGE (4-20%)



<Peak Table>

Peak#	Ret. Time	Area	Area%	Height	Height%
1	6.667	14354	0.742	711	0.726
2	6.958	10831	0.560	551	0.562
3	8.033	1910440	98.699	96717	98.712
Total		1935625	100.000	97979	100.000

SEC-HPLC, TSK-GEL G3000SWXL