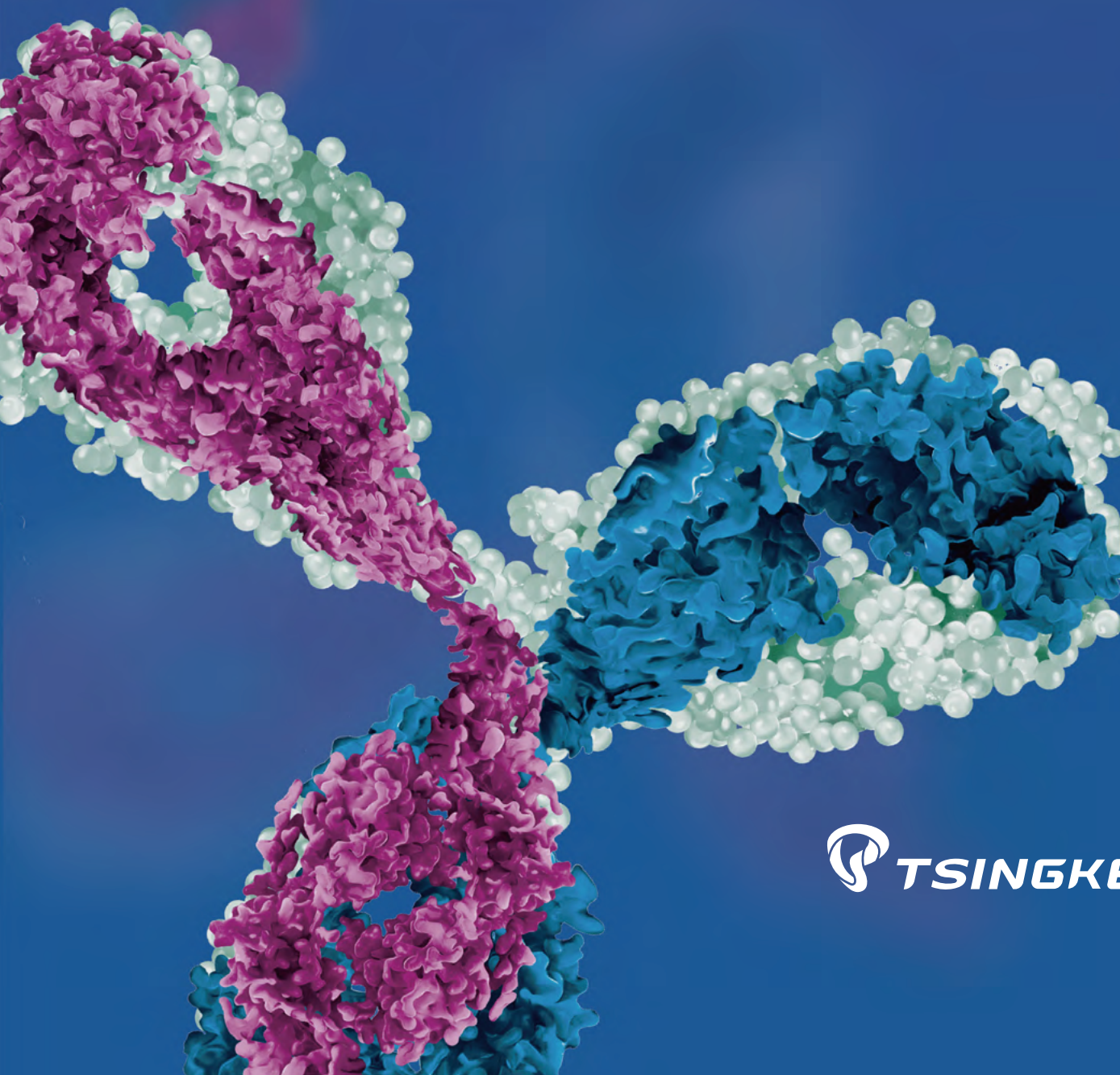


Protein & Antibody Service



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ABOUT US



01

Chapter 1

Company Profile

Our Mission

Biotech for a Better World

Our Vision

The great Tsingke gene factory

Our Values

Quality, Innovation, Striving, Win-win



Beijing Tsingke Biotech Co., Ltd. (“Tsingke” or “the Company”) is a high-tech enterprise in the field of synthetic biology, dedicated to providing efficient, high-quality genetic services and products for scientific research.

Leveraging independently developed key reagents, consumables, and synthesis equipment, Tsingke supports cutting-edge research in basic science and emerging technologies. Through its solutions initiative, the Company pioneers the concept of a “Gene Factory” to empower research and industrialization across a wide range of sectors, including biopharmaceuticals, biomanufacturing, agriculture, food, and environmental science.

Tsingke’s business spans synthetic genomics products and services, life science raw materials and equipment, and contract services in biomanufacturing (CXO). As a leader and practitioner of the “Gene Factory” concept, Tsingke integrates synthetic raw materials, equipment, and processes into a fully intelligent and automated production line. This system, enhanced by digital management, enables large-scale, high-efficiency, and cost-effective gene production.

Driven by the mission “Biotech – Making the World a Better Place” and guided by the values of Quality, Innovation, Hard Work, and Win-Win Cooperation, Tsingke is committed to building the world’s leading gene factory. We aim to promote scientific advancement, support industrial development, and contribute to the global rise of biotechnology and national enterprises.

ACHIEVEMENTS

As of March 2025, Tsingke has more than 200 patents authorized and pending, of which more than 60 patents for invention have been granted. More than 17,000 articles have been published using Tsingke's services and products, with a cumulative impact factor of more than 100,000.



PRODUCTION STANDARD

Tsingke Biotech is committed to providing high-quality, localized biotechnology services and products to researchers and enterprises engaged in life sciences research. The company and its related molecular companies have been certified by the relevant quality systems and the ISO 13485:2016 quality

management system for medical devices, and are equipped with a class 100,000 clean production plant and automated production facilities in compliance with the biopharmaceutical diagnostic standards, as well as an innovative R&D center of more than 12,000 m. The company's R&D center is located in the heart of the city. The company also has over 12,000 m² of innovation and R&D center.



The background is a deep blue with a microscopic theme. It features faint, glowing outlines of cells and various protein structures, including some that look like Y-shaped molecules and others that are more complex, multi-lobed shapes. These elements are scattered across the frame, creating a sense of biological activity.

PROTEIN EXPRESSION SERVICE

02

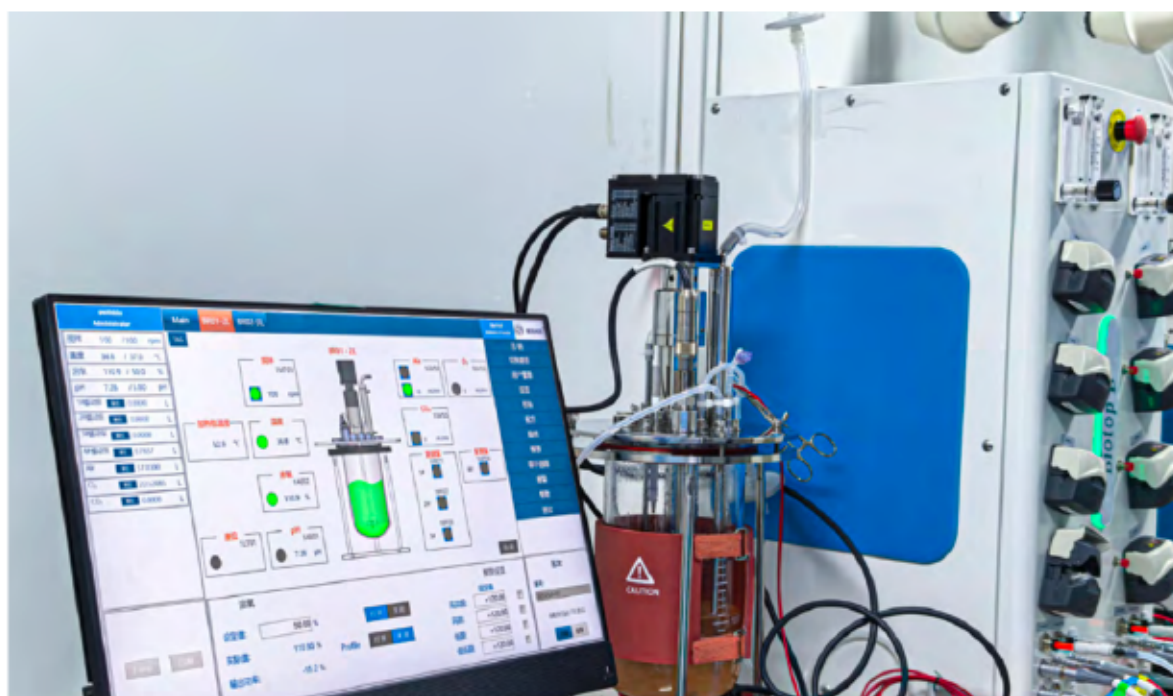
Leveraging its intelligent gene synthesis production line, Tsingke integrates five protein expression systems with a high-throughput instant antibody expression platform, a hybridoma development platform, a mouse monoclonal antibody platform, and a single B cell screening platform. Together, these capabilities enable one-stop, comprehensive protein and antibody services—from gene sequence to protein expression.

Our offerings cover a wide range of solutions, including:

- Protein expression services
- Recombinant antibody customization
- Hybridoma sequencing services
- Rabbit polyclonal antibody customization
- Mouse monoclonal antibody customization
- Single B cell antibody screening
- Natural and immune library nanobody screening
- Peptide Synthesis

.....

Tsingke provides end-to-end support for scientific research and biopharmaceutical development through efficient, high-quality, and fully customizable protein and antibody solutions.

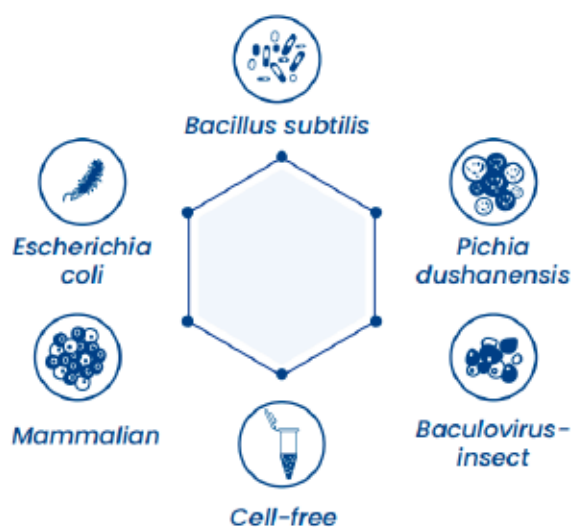


Chapter 2

Protein Expression Service

· Service Introduction

Tsingke provides one-stop service from gene sequence to protein expression and purification, and delivers high-quality protein products. Available expression systems include *Escherichia coli*, *Bacillus subtilis*, yeast, insect cells, mammalian cells, and prokaryotic cell-free systems.



One-stop Service



Six Expression System

μg
 $\sim\text{g}$

High success rate > 95%



High Expression level μg -g level

Through the deep codon optimization technology, the expression level can be adjusted from the nucleic acid stage, and the expression amount and solubility of the protein can be improved. At the same time, our team has rich experience in the expression and purification of soluble proteins, using a variety of solubility-promoting labels (Sumo, TrxA, GST, MBP) and various types of expression strains and expression vectors, and has many different paths of protein renaturation experience to provide customers with high-quality expression services and meet the needs of subsequent experiments.

· Service

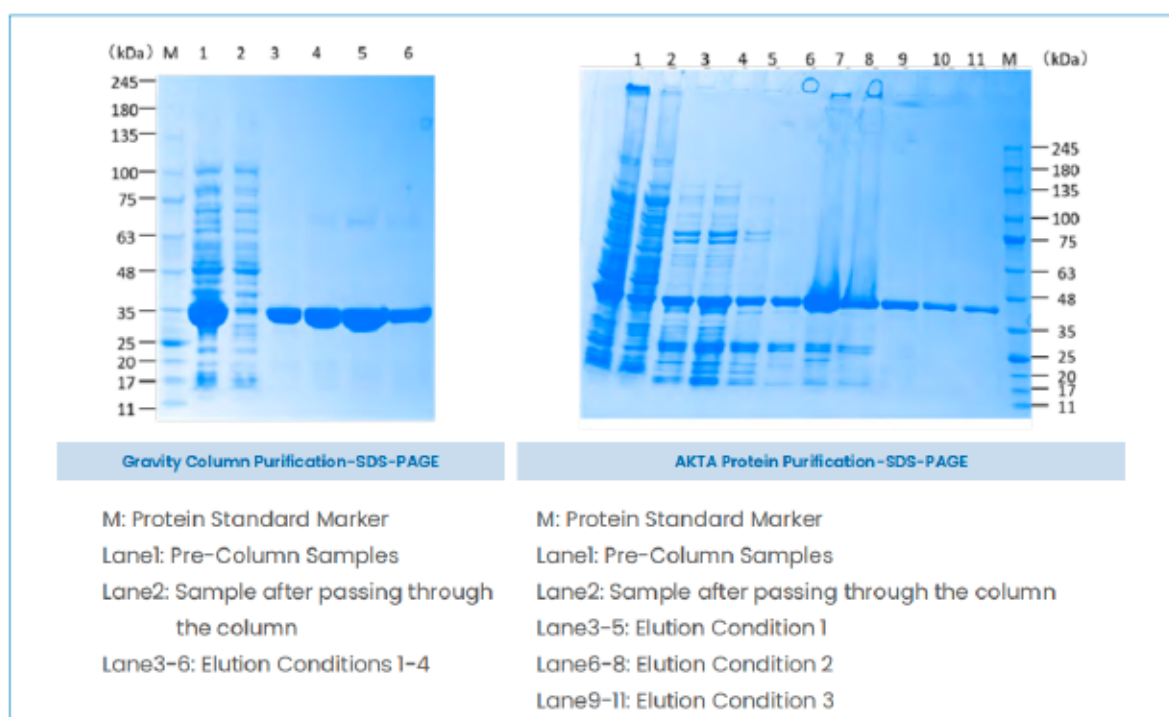
Service	characteristic	Type	Catalog NO.	TAT(weeks)
Escherichia coli Expression System	As fast as 1 week, successfully delivered 3000+ projects	Standard customized expression service	Tsingke-P01-1	3~5
		Guaranteed expression service	Tsingke-P01-2	4~6
		High Throughput Expression Service	Tsingke-P01-3	2~3
		Rapid Expression Service	Tsingke-P01-4	1~2
		Expression Characterization Service	Tsingke-P01-5	1
Bacillus subtilis Expression System	Support production scales ranging from 1 to 4000 liters per batch	Expression Characterization Service for Bacillus subtilis	Tsingke-P02-1	2~4
		Bacillus subtilis Expression Trial Service	Tsingke-P02-2	3~5
		Expression scale-up service for Bacillus subtilis	Tsingke-P02-3	4~7
Yeast Expression System	pPIC9k, pP Select IC; 3.5k, pPIC Za30A0, etc. successfully delivered 300+ projects	Yeast Expression Characterization Service	Tsingke-P03-1	2~3
		Yeast Expression Trial Service	Tsingke-P03-2	3~4
		Yeast Expression Amplification Service	Tsingke-P03-3	6~9
Insect Expression System	Multiple expression cell lines: Sf9, Hi5, etc. Optimized vectors for best expression	baculovirus expression service	Tsingke-P04-1	5~7
		baculovirus expression scale-up service	Tsingke-P04-2	7~9
Mammalian Expression System	Proprietary high-yield cells, Efficient electroporation/chemical transfection, Delivery in as fast as 2 weeks	Mammalian Cell Expression Service	Tsingke-P05-1	3~5
		Mammalian Cell Expression Amplification Service	Tsingke-P05-2	5~7

Service	characteristic	Type	Catalog NO.	TAT(weeks)
Prokaryotic Cell-free Expression System	Supports natural, non-natural, and toxic protein synthesis, 3 days for urgent cases	Prokaryotic Cell-free Expression Service	Tsingke-P06	3-5

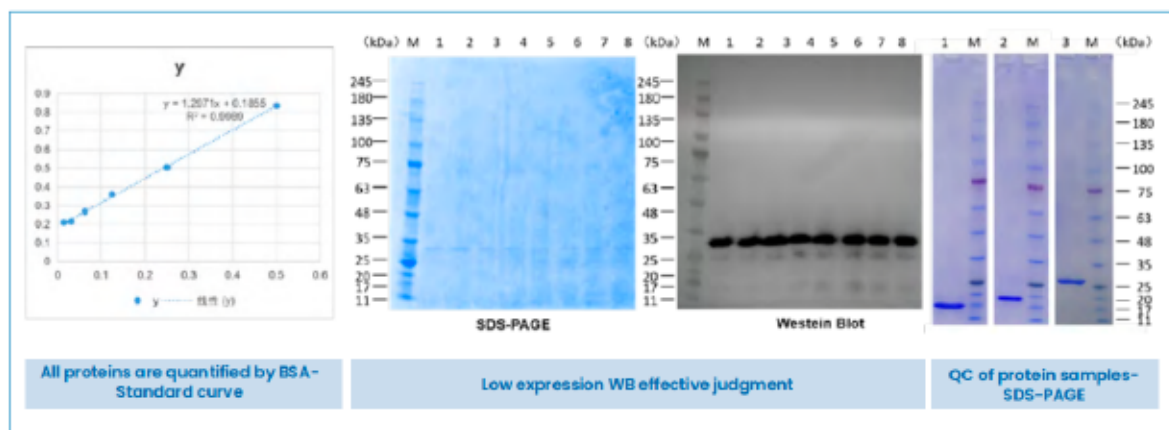
· Service Case

1.E.coli expression system:

Case 1: Protein expression

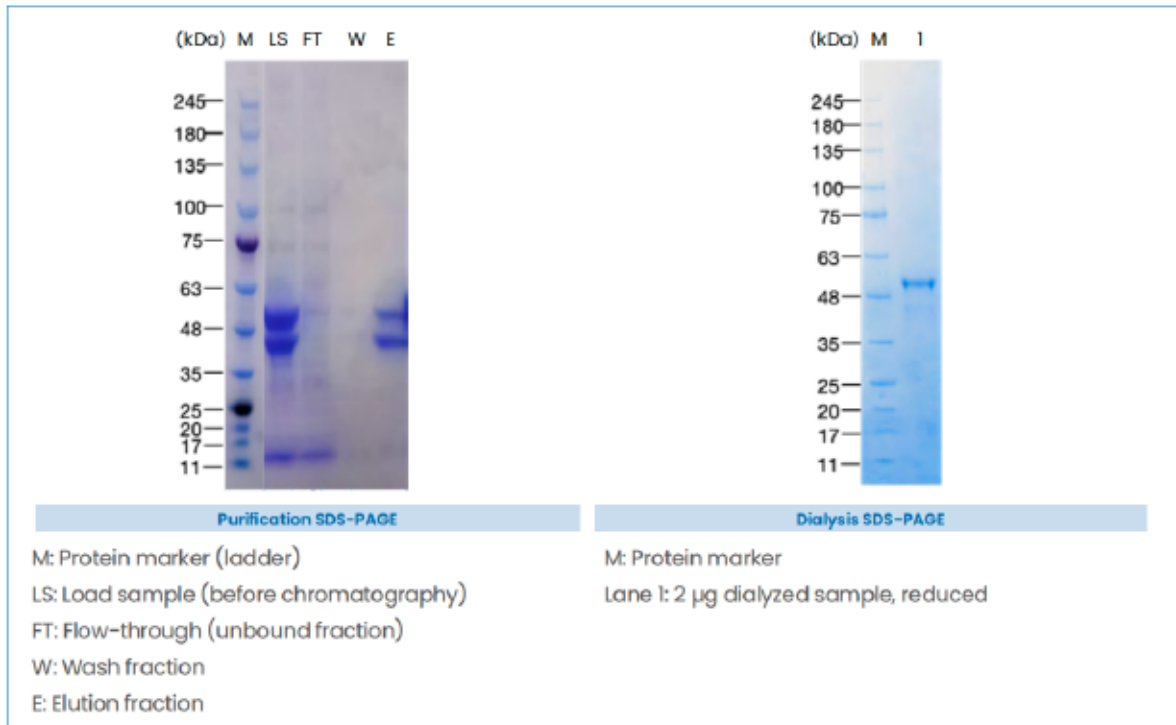


Case 2: Strict QC standards



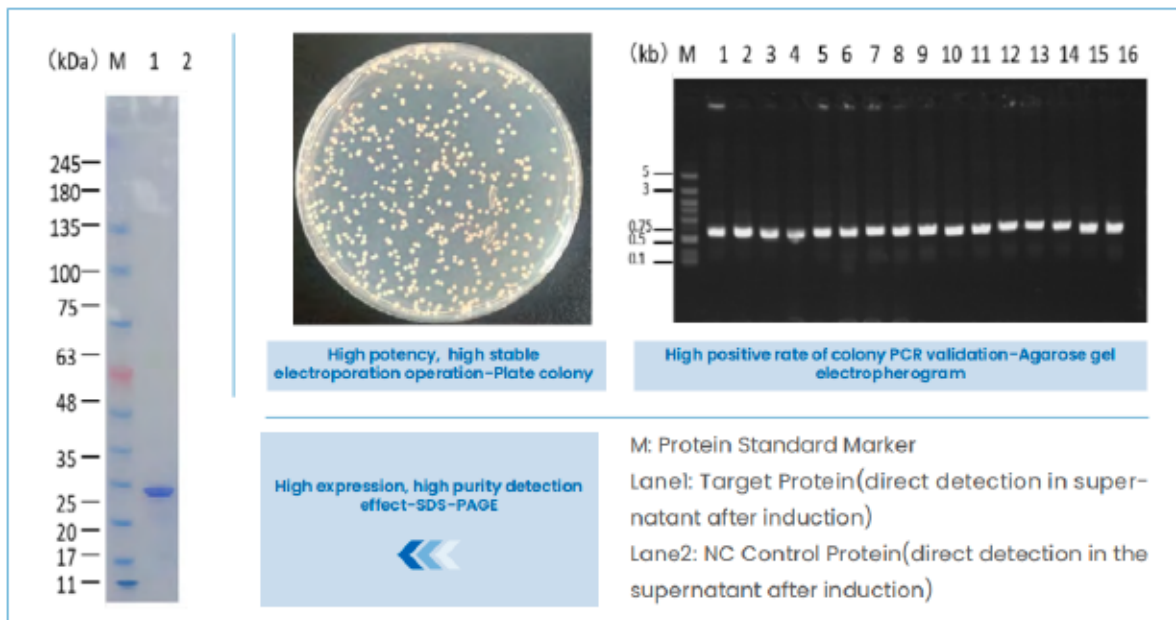
2.Mammalian Expression System:

- Sample Information:Fc-tagged protein,42.3 kDa,pI5.62
- Expression System: HEK293
- Expression Vector: pCDNA3.4
- Purity: >90%, as determined by SDS-PAGE

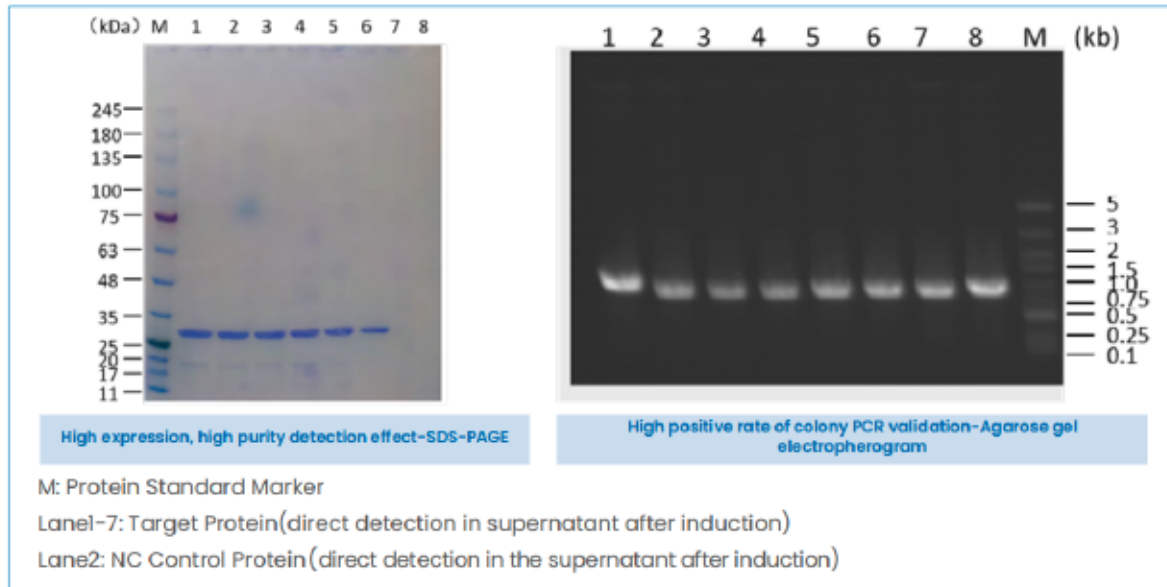


Note: The apparent higher molecular weight of the electrophoretic band is due to glycosylation and other post-translational modifications, which reduce electrophoretic mobility.

3.Yeast expression system:



4. *Bacillus subtilis* expression system:



5. Insect expression system:

(1) P1 viral expression test result: Theoretical molecular weight of target protein is 26.57 kDa, strep tag. Figure 1B Detection of ~25 kDa band, arranged 2# production of P2 generation virus.

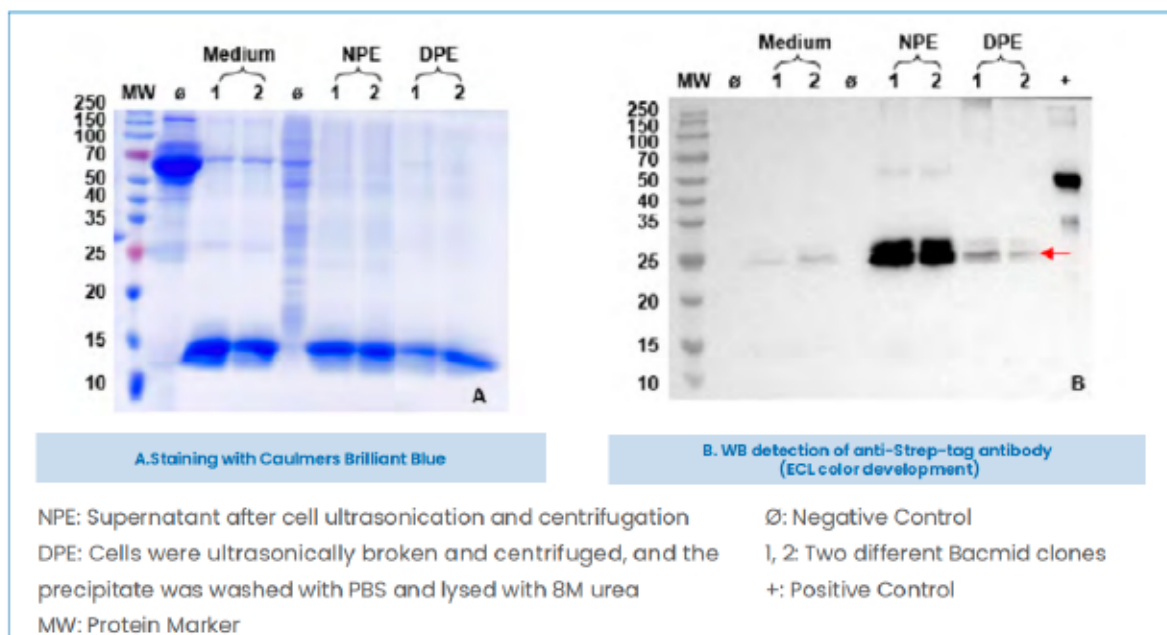
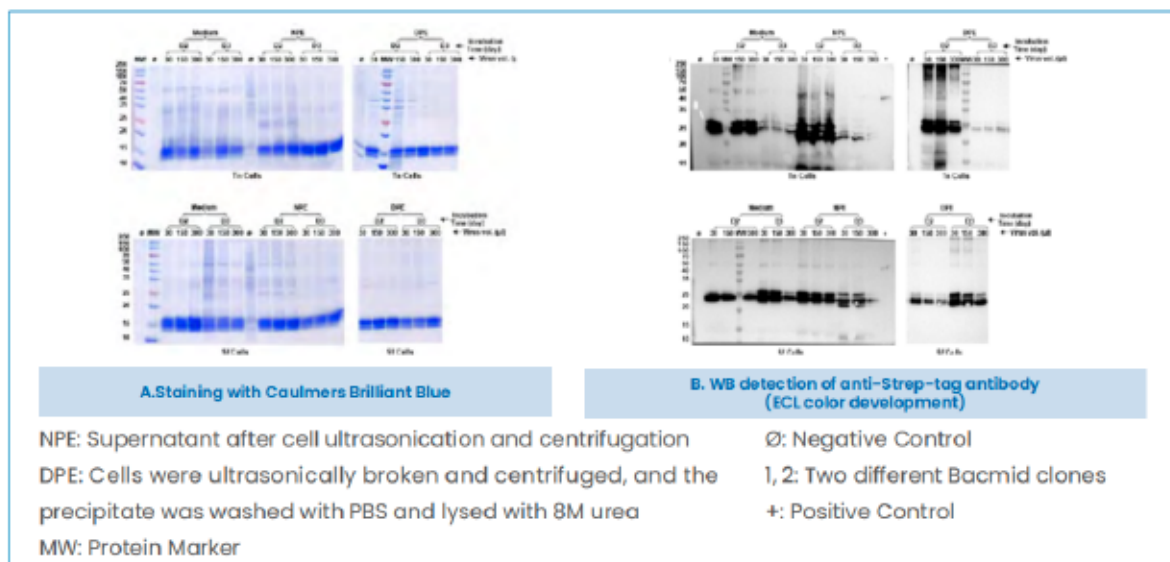


Figure 1. P1 expression test results (Reductive SDS-PAGE analysis)

(2) Optimization of expression conditions: theoretical molecular weight of target protein is 26.57 kDa, strep tag. It is expected to arrange Tn cells, MOI (30 μ L) D2 amplification 200 mL.



RECOMBINANT ANTIBODY SERVICE

03

Chapter 3

Recombinant Antibody Service

· Service Introduction

Recombinant antibody technology is a method of producing antibodies by means of genetic engineering. By inserting the gene encoding the antibody into the expression.

We can produce antibodies with high specificity and affinity by expressing them in host cells (e.g. HEK293 or CHO cells). They are widely used in novel therapeutic drug development, diagnostic kit development, and so on.

Tsingke's Recombinant Antibody Expression Service is a highly efficient transient transfection process based on Expi293 and CHO-K1, which enables rapid and high-quality expression of recombinant antibodies. We can purify antibodies from gene sequence to milligram level in as fast as 7 days, and achieve gram level expression in as fast as 14 days.



Fast turnaround times

As fast as 7 days delivery



High Expression

Average expression yield:
>300 mg/L



Diverse Antibody Isotypes

Multiple isotype backbone
vectors available



Strict quality control

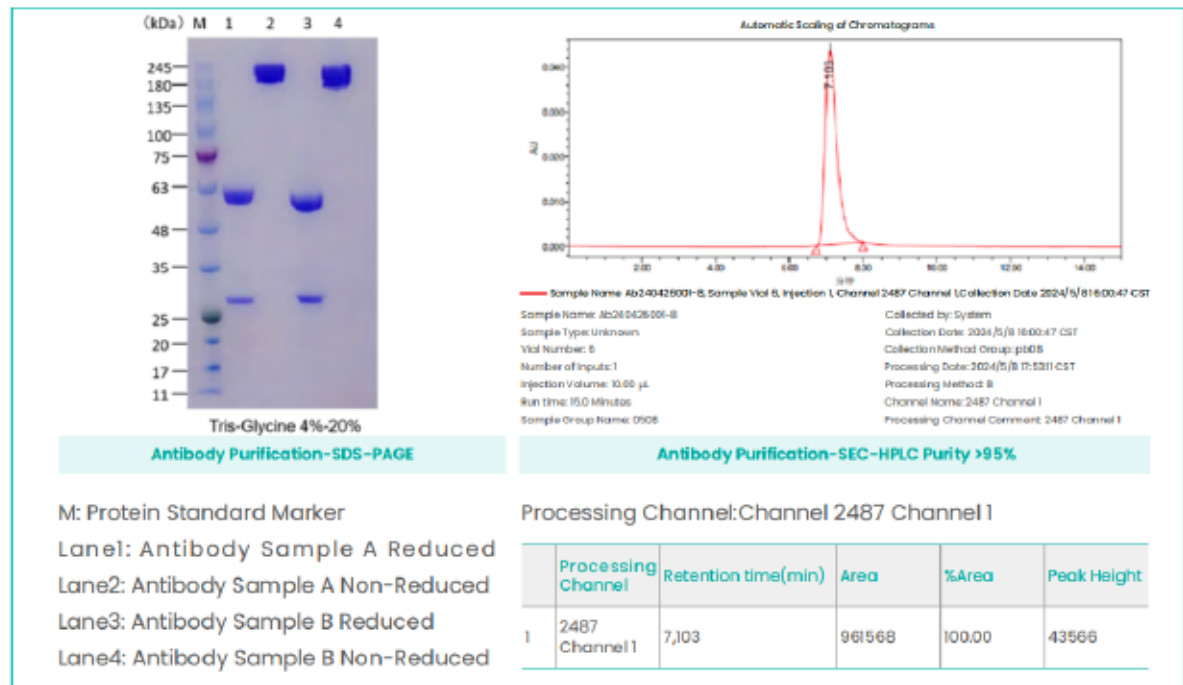
Ensure stable delivery

· Service Content

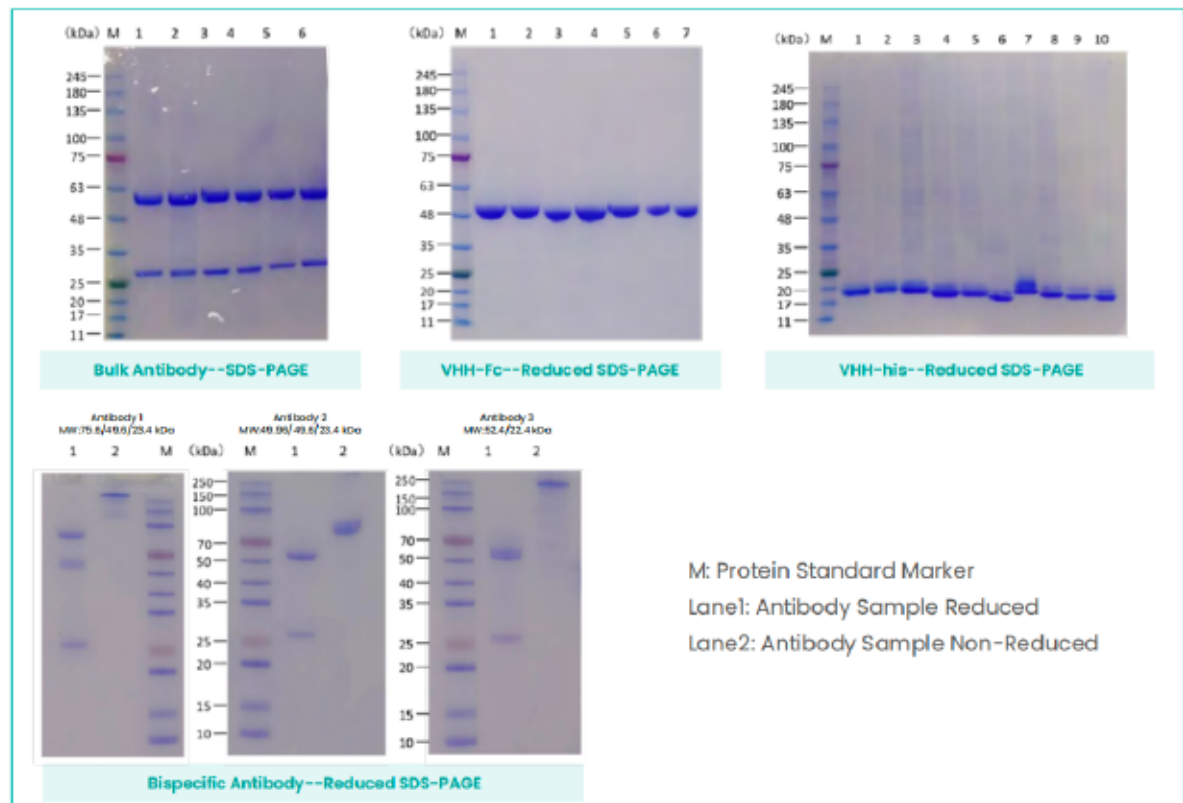
Service	Type	Catalog NO.	Specification	TAT(weeks)
Standard Recombinant Antibody Expression	Recombinant antibody expression services including full-length monoclonal antibody, VHH-His, VHH-Fc, Fab	Tsingke-P07-1	3 mL	2
		Tsingke-P07-2	10 mL	2
		Tsingke-P07-3	30 mL	2
		Tsingke-P07-4	50 mL	2
		Tsingke-P07-5	100 mL	2
		Tsingke-P07-6	200 mL	2
		Tsingke-P07-7	500 mL	2
		Tsingke-P07-8	1000 mL	2
		Tsingke-P07-9	>1 L	2
Guaranteed Recombinant Antibody Expression	Guaranteed Recombinant Antibody Expression , including full-length monoclonal antibody, VHH-Fc, VHH-His	Tsingke-P08-1	10 mg	2
		Tsingke-P08-2	30 mg	2~3
		Tsingke-P08-3	50 mg	2~3
		Tsingke-P08-4	100 mg	2~4
		Tsingke-P08-5	300 mg	3~5
		Tsingke-P08-6	500 mg	3~5
		Tsingke-P08-7	1000 mg	3~5
Well Plate Supernatant Expression	Well Plate Supernatant Expression	Tsingke-P09	/	1-2
Bispecific Antibody Expression	Symmetric /Asymmetric bsA	Tsingke-P10-1	/	3-5

· Service Case

1.Full-length mAb customization:



2.Other kinds of antibody customization:



HYBRIDOMA SEQUENCING SERVICES

04

Chapter 4

Hybridoma Sequencing Services

· Service Introduction

Hybridoma technology is a well-established method for monoclonal antibody production, widely used for antibody development. However, hybridoma cells require strict storage conditions in liquid nitrogen and may experience issues like gene loss or cell death during subcloning. Hybridoma sequencing allows for the acquisition of monoclonal antibody sequences, enabling recombinant antibody production, which addresses cell instability and preservation challenges. Additionally, hybridoma sequencing aids in antibody characterization, humanization, and optimization, enhancing antibody potency and specificity. It also supports intellectual property protection and antibody library creation, accelerating the development of novel therapeutic antibodies.

Tsingke Biotech's hybridoma sequencing services extract and sequence antibody genes from hybridoma cells, providing nucleotide sequences stored as DNA. We also offer one-stop solutions for antibody plasmid construction and recombinant antibody expression, facilitating rapid recombinant antibody production and accelerating the antibody development and validation process.



Fast turnaround times

As fast as one week



Low cell consumption

Standard can be reduced to the amount of $1E+4E-1E+5$.



One-stop service

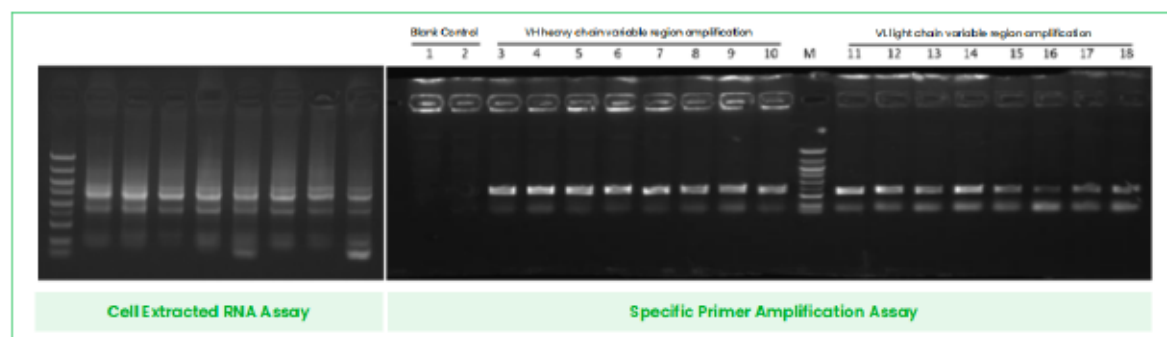
Directly cloned into expression vectors for transient antibody production

• Service content

Service	Type	Catalog NO.	TAT(weeks)
Hybridoma sequencing service	Variable Region Sequencing	Tsingke-C01	1~2
	Full-length Antibody Sequencing	Tsingke-C02	
	NGS	Tsingke-C03	

• Service case

1. Mouse hybridoma sequencing:



ANTIBODY PREPARATION SERVICE

05

Chapter 5

Antibody Preparation Service

· Service Introduction

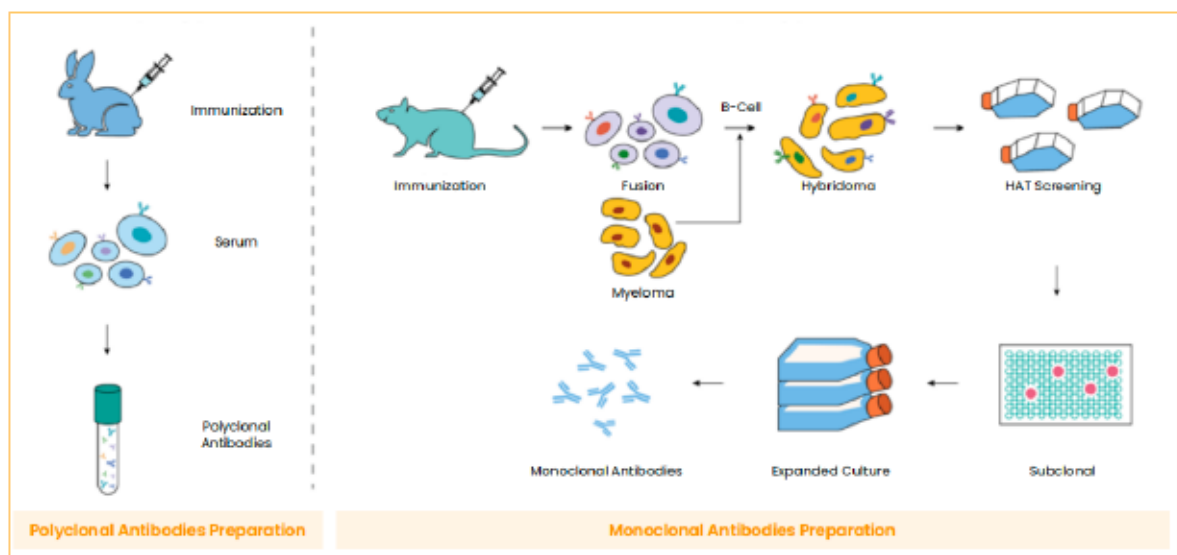
Polyclonal Antibody (pAb) is an antibody mixture produced by several different B lymphocyte clonal populations, and each clonal population can recognize and bind different sites of antigen, so it has a variety of antigen specificity.

Polyclonal antibodies are prepared by injecting antigens into immunized animals to stimulate the production of multiple antibodies, and extracting and purifying these antibodies from serum. Rabbit Polyclonal Antibodies are antibodies produced by immunostimulation of rabbits. Rabbits have a strong immune response to antigens, making them one of the most commonly used animal models. Rabbit polyclonal antibodies are widely used in scientific research and diagnostics, especially for the detection and localization of specific antigens in experimental techniques such as immunohistochemistry, immunoblotting and immunofluorescence.

Monoclonal Antibody (mAb) is a class of antibodies with specificity for a single antigen. It is a highly uniform antibody produced by a single clone of B lymphocytes that recognizes only a specific antigenic epitope. Monoclonal antibodies are often prepared by hybridoma technology, which involves fusing B cells with the ability to secrete specific antibodies from immunized animals with myeloma cells with unlimited reproduction capacity, and then screening and expanding the hybridoma cells that produce specific antibodies in order to obtain highly specific antibodies.



	Monoclonal Antibodies	Polyclonal Antibodies
Source	Single B Cell Clone	Multiple B-cell clones
Specificity	Highly specific, recognizes a single antigenic epitope	Recognizes multiple antigenic epitopes
Consistency	Highly consistent, every antibody molecule is identical	Antibody properties may vary due to multiple clone origins
Production Methods	Hybridoma technology: fusion of immunized B cells and myeloma cells	Antibodies are extracted from serum after immunization of animals
Production time	Typically long, due to screening and cloning requirements	Relatively short, directly from serum of immunized animals
Antibody volume	Usually higher yields	Yield may be low, but serum contains large amounts of antibody
Areas of application	Applications requiring high specificity and consistency, e.g. diagnostic, therapeutic	Widely used in experiments and assays, e.g. immunohistochemistry, ELISA
Advantages	High specificity and consistency	Highly versatile, able to recognize multiple epitopes
Disadvantages	May take longer to screen and optimize	May have batch-to-batch variation and lower specificity



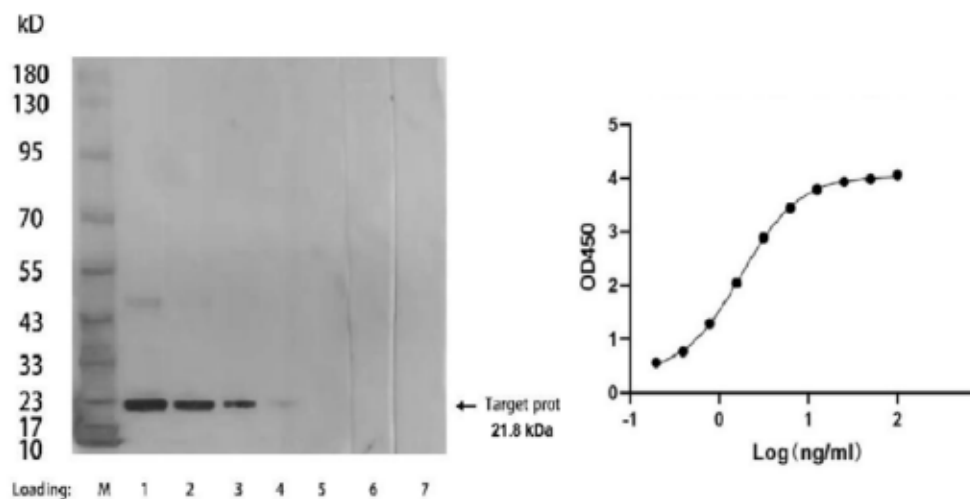
• Service Content

Service	characteristic	Type	Catalog NO.	TAT(weeks)
Rabbit Polyclonal Antibody Customization Services	Antibody delivery in as fast as 45 days;	Rabbit Standard Poly-antibody Preparation Service - Peptide Antigens	Tsingke-A01	9-11
	Suitable for various applications to meet different research needs	Rabbit Standard Multiple Antibody Preparation Service - Protein Antigen	Tsingke-A02	9-11
		Rapid Rabbit Multi-Antibody Preparation Service	Tsingke-A03	7
Mouse Polyclonal Antibody Customization Services	Self-developed immunoadjuvant cell, fusion project into, success rate success; rate of completion>95%	Mouse Hybridoma Monoclonal Antibody Customization Service	Tsingke-A04	Antigen synthesis and immunization phase: 8-10 weeks Fusion and screening phase (first delivery): 5-7 weeks Subcloning, clone selection, and antibody production phase (second delivery): 6-8 weeks
Antibody Service Other Specialties: Antigen-Coupled Carrier Protein (ACCP)		Antigen-coupled carrier protein (KLH,BSA,OVA)	Tsingke-A05	1
		HRP labeling	Tsingke-A06	1
		Biotin labeling	Tsingke-A07	1
		FITC labeling	Tsingke-A08	1
		Ifiuror 488, 555, 647 marker	Tsingke-A09	1
		Protein A/G purification	Tsingke-A10	1
		Antigen affinity purification	Tsingke-A11	1
		Elisa antibody potency assay	Tsingke-A12	1
		WB assay	Tsingke-A13	1
		IP/WB test	Tsingke-A14	1
		Antibody fragmentation service (Fab, F(ab)2)	Tsingke-A15	2

· Service case

1. Multi-antibody preparation service case:

Tsingke Biotech expresses recombinant proteins and immunizes two New Zealand white rabbits with three immunizations. After collecting rabbit serum, the antigen is affinity-purified to obtain specific antibodies against the recombinant protein. Using this antibody at 100 ng/mL, 2 ng of recombinant protein can be detected. The antibody titer, measured by indirect ELISA, shows an EC₅₀ of 1.7 ng/mL, demonstrating excellent recognition of the recombinant protein by the affinity-purified antibody.



WB Assay

B. ELISA

M: Prestained Color Protein Marker

Lane 1: Target Protein 100 ng

Lane 2: Target Protein 50 ng

Lane 3: Target Protein 10 ng

Lane 4: Target Protein 2 ng

Lane 5: Target Protein 0.5 ng

Lane 6: Target Protein 100 ng

Lane 7: Target Protein 100 ng

Primary antibody:

Lane 1,2,3,4,5: Anti- Target Protein Antibody 100ng/mL

Lane 6: PBS

Lane 7: Rabbit IgG Control 1000ng/mL

Secondary antibody:

Goat Anti-Rabbit IgG(H&L)[HRP], pAb (Ningyang Biotech Cat.No: NA0030)

ANTIBODY SCREENING SERVICE

06

Chapter 6

Antibody Screening Service

· Service Introduction

Single-B cell antibody technology refers to the separation of specific B cells from the tissues or peripheral blood of immunized animals by using the characteristics of B cells producing single specific antibodies, and then the DNA sequences of their heavy chain and light chain variable regions are amplified by single-cell PCR technology and expressed in mammalian cells, thus obtaining monoclonal antibodies with biological activity.

Tsingke provides one-stop single B cell antibody preparation services, including immunogen preparation, single B cell sorting, identification and antibody production, providing customers with comprehensive antibody screening solutions.

Natural library refers to the nano antibody library that has not been stimulated by specific antigens. It has the characteristics of rich diversity and large library capacity, and can screen any target. Immune library is a nano-antibody library stimulated by specific antigen proteins, which can only screen specific target proteins, and has the characteristics of single diversity and small library capacity.

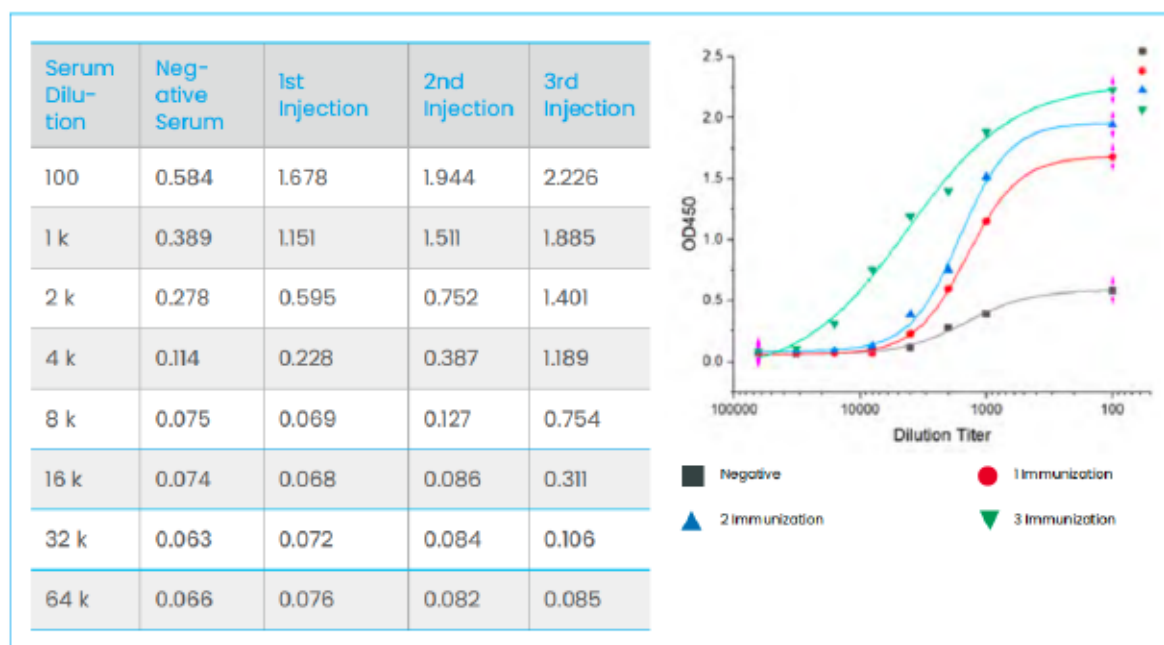
Service	characteristic	Type	Catalog NO.	TAT(weeks)
Single screening B cell antibody	One-stop service: Antigen preparation, immunization, and single B cell screening Fast turnaround, screening completed in as little as 1 month High throughput, with high affinity and specificity Direct acquisition of recombinant antibody expression plasmids, enabling stable cell line constructionw	Single B Cell Antibody Screening Services-mouse monoclonal antibody	Tsingke-B01	8-10
		Single B Cell Antibody Screening Services-rabbit monoclonal antibody	Tsingke-B02	8-10
Tianku takes Nawu-kumi anti-immunity screen.	Immunization Library Screening: High affinity, rich diversity, low cost, high success rate, and short cycle Natural Library Screening: Large library capacity, rich diversity, high screening throughput, short cycle, with screening completed in as fast as 10 days, yielding a large number of unique sequences	Screening of natural and fully humanized scFv/Fab antibody library	Tsingke-B03	2
		Natural Camel Nano Antibody VHH Library	Tsingke-B04	2
		Llama / Alpaca Immunization Library Construction and Screening	Tsingke-B05	8-10

· Service Case

1.Multi-antibody preparation service case:

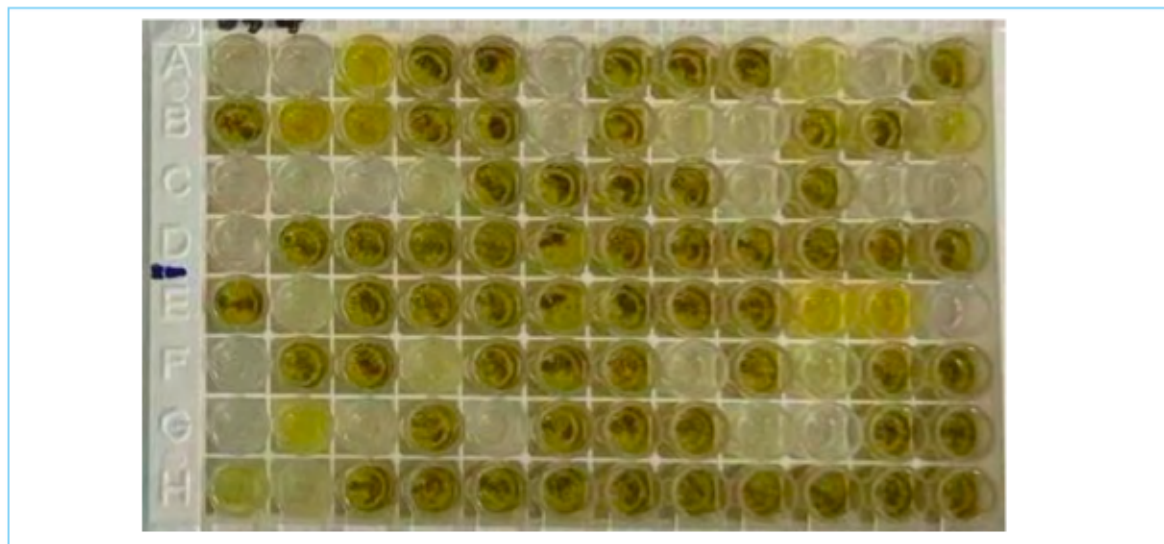
In this project, the 3rd vaccination was immunized in the normal procedure, and the potency reached about 16K, so the immunization has successfully reached the standard.

The immunization was completed and the next step was library construction.

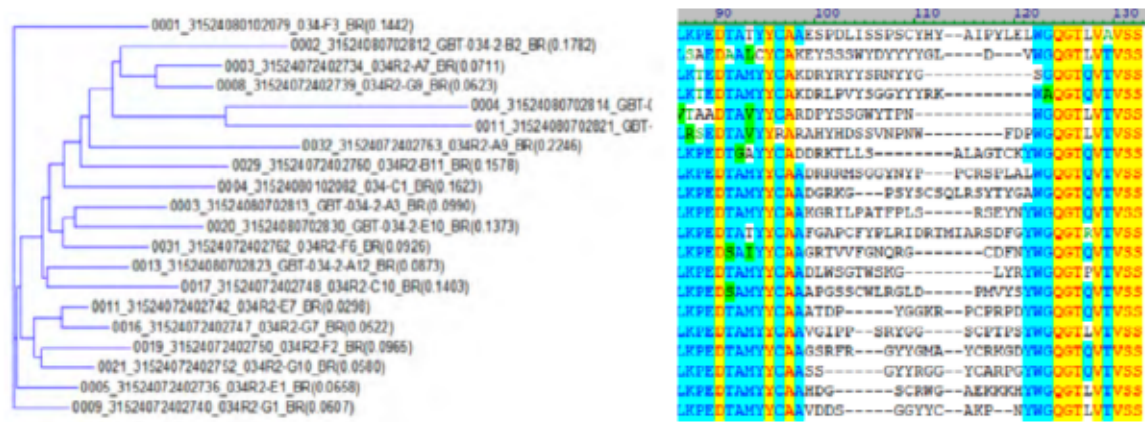


2.ELISA Testing for Immunization library construction

In the R2 round of the second screening, 96 clones were selected for ELISA. Positive single clones with a value greater than 1 is the judgment limit, and there are 65 positive clones in total.



	1	2	3	4	5	6	7	8	9	10	11	12
A	0.142	0.12	1.044	2.187	2.238	0.138	2.442	2.664	2.488	0.433	0.128	2.163
B	2.34	1.914	2.136	2.37	2.516	0.145	2.562	0.22	0.134	2.671	2.37	0.525
C	0.123	0.126	0.106	0.2	2.503	2.582	2.628	2.503	0.13	2.503	0.115	0.152
D	0.107	2.512	2.688	2.478	2.478	2.478	2.478	2.415	2.746	2.746	2.445	2.55
E	2.725	0.198	2.871	2.871	2.725	2.725	2.968	2.394	2.792	1.068	1.689	0.103
F	0.106	2.7	2.457	0.274	2.457	2.489	2.603	0.166	2.603	0.257	2.489	2.524
G	0.093	0.539	0.171	2.55	0.128	2.585	2.664	2.664	0.166	0.114	2.623	2.55
H	0.404	0.232	2.905	2.563	2.826	2.905	3.002	2.759	3.002	2.905	3.269	3.269



PEPTIDE SYNTHESIS SERVICE

07

Chapter 7

Peptide Synthesis Service

· Service Introduction

Peptide synthesis refers to the process of linking amino acids in a certain order (generally from the C-terminal to the N-terminal) to form a peptide chain.

Commonly used in the synthesis of proteins and peptides. Peptide synthesis methods are mainly divided into biosynthesis and chemical synthesis, and chemical synthesis is still the most important method to synthesize peptides, which includes liquid-phase synthesis and solid-phase synthesis. Compared with liquid-phase synthesis, solid-phase synthesis has significant advantages in the synthesis of long peptides. Its operation is simple, intermediates do not need to be purified, and automation and high-throughput synthesis can be realized, which is the mainstream method of peptide synthesis at present.

Tsingke utilizes advanced fully automated synthesizers and integrates peptide solid-phase synthesis, liquid-phase synthesis, microwave synthesis, and fragment condensation technologies to achieve highly efficient synthesis of a variety of complex peptides, providing strong protection for our customers' downstream experiments



High quality



High throughput



High success rate



Fast cycle time



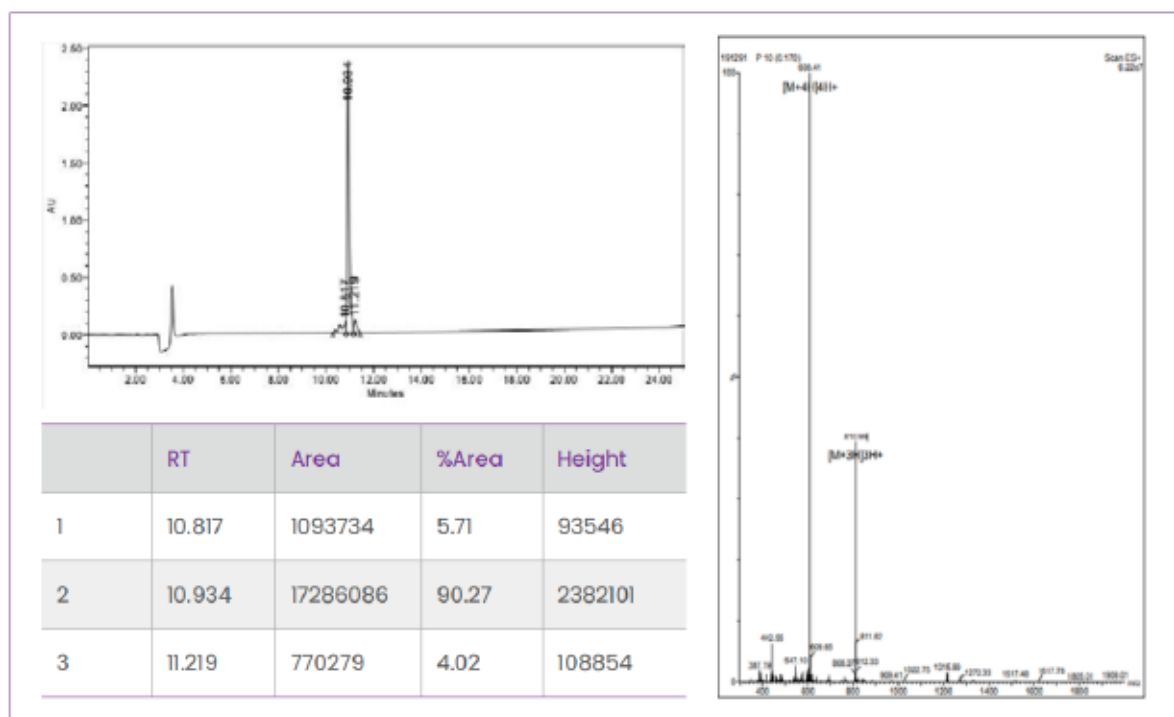
A wide range of modifications

• Service content

Service	Type	Catalog NO.	Specification	TAT(weeks)
Multi-service peptide customization	Routine customized peptide	Tsingke-D01	1 mg-1 g; from crude, 75%-98	2~3
	Modified peptide	Tsingke-D03	Various modifications	4~6
	Peptide with different structure	Tsingke-D04	Different structures of peptides	4~6
	Peptide Coupling	Tsingke-D05	Used for antigenic peptide coupling service	3~5
	Peptide library	Tsingke-D06	Peptide libraries for bulk orders	3~5

• Service Case

23AA, MW 2429.64; QC chart of peptide sample > 90% purity



Chapter 8

Contact Information

· Contact Us

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