

Providing reliable products  
and services for life science

# PRODUCT BROCHURE

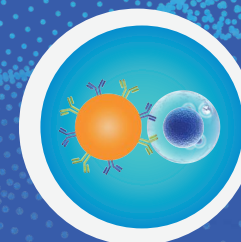
BEIJING T&L BIOTECHNOLOGY CO.,LTD

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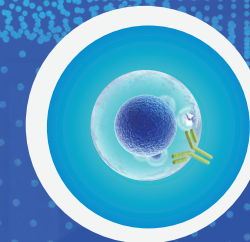


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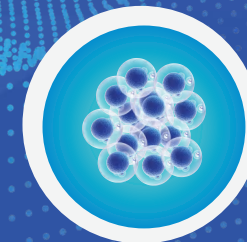
**CliniSciences Group**



Magnetic Bead  
Separation



Activation

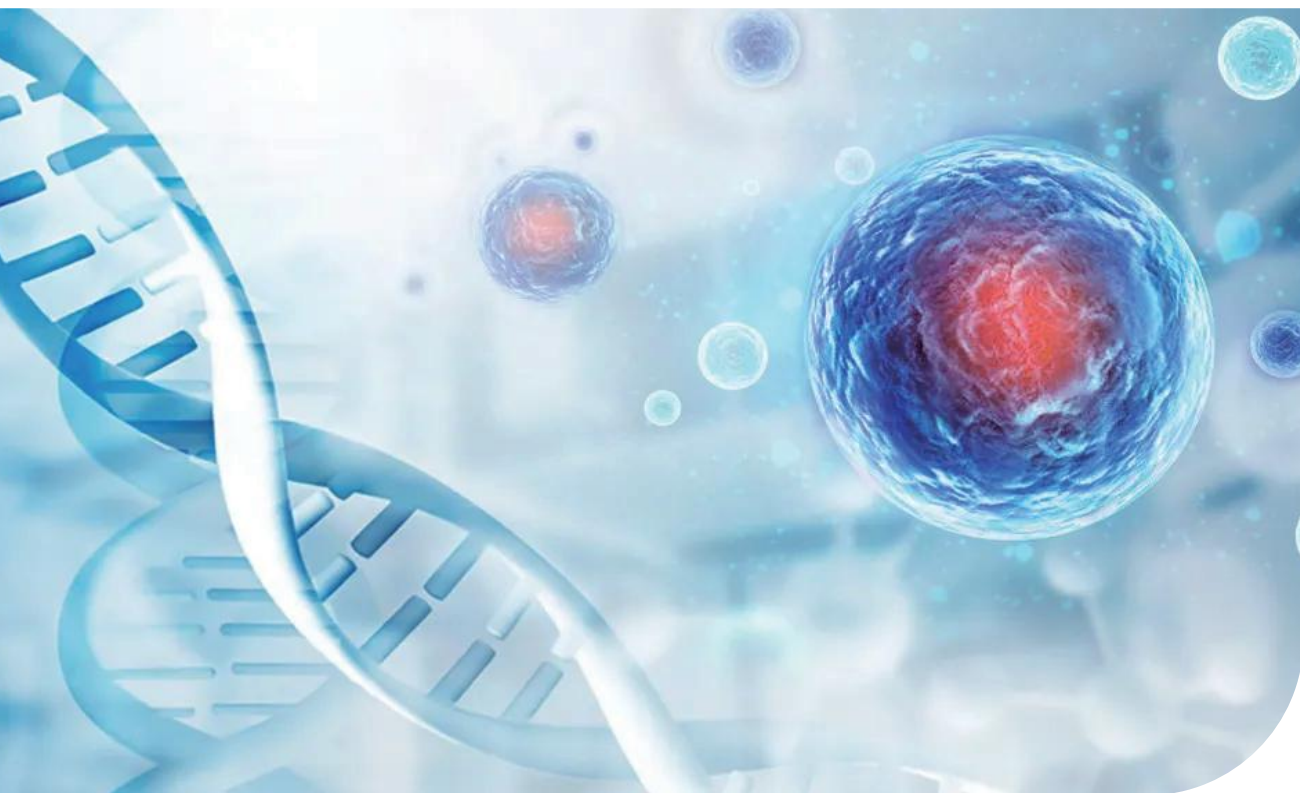


Cell Culture



Gene Modification





**Brand Honor** - Leading Enterprise in Upstream Core Reagents of Cell and Gene Therapy

National high-tech enterprises

ISO9001 Quality System Certification  
ISO13485 Medical Device Quality Management System Certification



# About T&L Biotechnology

T&L Biotechnology Ltd., founded in 2011, focuses on the research and development of upstream GMP grade raw materials and reagents for cell and gene therapy (CGT). We commit to providing reliable products and services for life science. Our products include cell separation & activation magnetic beads, eukaryotic/prokaryotic recombinant protein, serum-free medium, cell culture kits, etc. We provide core raw material reagents and services for biopharmaceutical such as cell and gene therapy drugs and cell storage.

The company has a research and development laboratory and a GMP level clean workshop of 3200m<sup>2</sup>, including cell separation magnetic beads development platform, eukaryotic and prokaryotic protein expression engineering platform, cell culture technology development platform. We have passed both ISO13485 and ISO9001 certifications, and some products have been registered with the FDA DMF in the United States.

FDA DMF filed



DMF 038124

DMF 038125

DMF 038126

DMF 038127

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# CONTENTS

## Immunocyte therapy

- T cells
- NK cells
- NKT cells
- CIK cells
- DC cells
- Dendritic cells

## Gene therapy

- Gene modification



## Stem cell therapy

- MSC
- iPSC
- HSC

## Technical services

- Magnetic bead customization service
- Recombinant protein expression
- Antibody customization
- Cell manufacture
- Detection services

## Magnetic Bead Separation

ActSep <sup>®</sup> separation magnetic beads	01
NanoSep <sup>™</sup> cell separation beads	02
Magnetic bead customization service	03

## Activation/Differentiation

Anti human monoclonal antibody	04
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## Cell Culture

Immune cell culture medium	05
Cell culture kit	06
Recombinant human cytokines & growth factors	07
HEK293 cell culture solution	08

## Genome Modification

Tool enzyme	09
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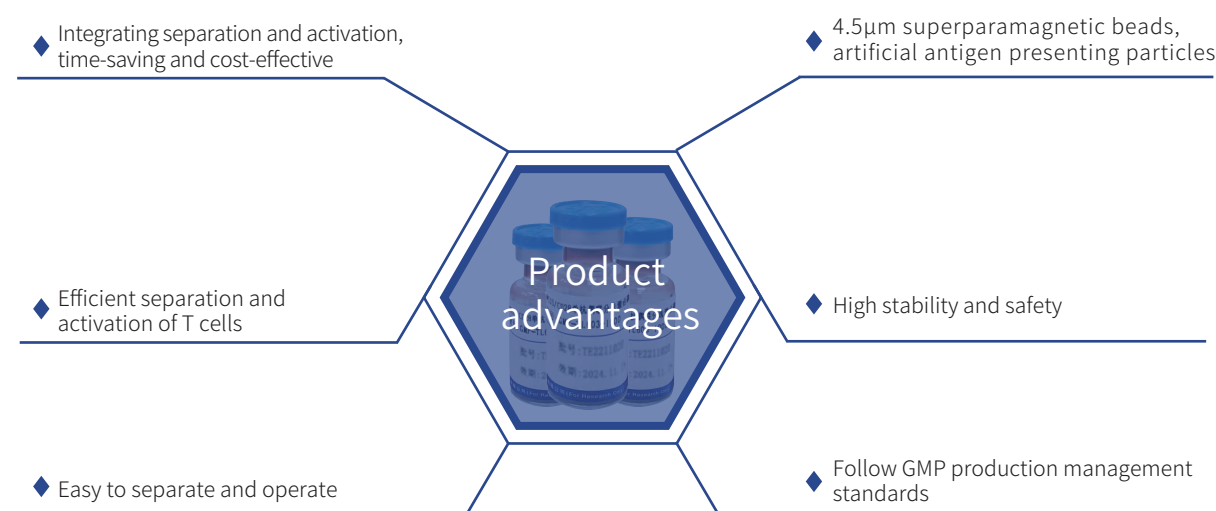
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## Magnetic Bead Separation

### ActSep<sup>®</sup> cell separation magnetic beads

ActSep<sup>®</sup> CD3/CD28 separation & activation magnetic beads integrates cell separation and activation functions with high efficiency, which is suitable for human T cells, CAR-T and other T cells culture applications. It is time-saving, cost-effective.

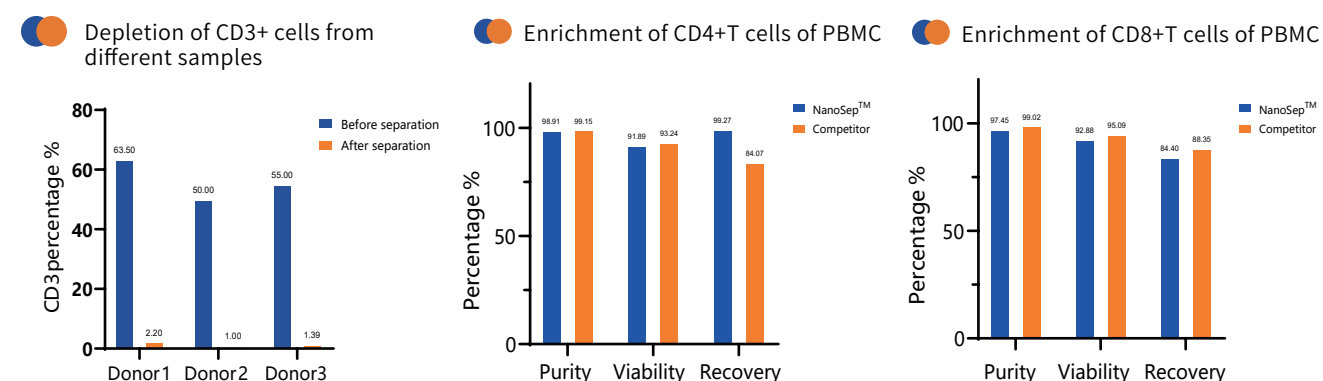


No.	Product name	Art.No	Specifications
1	ActSep <sup>®</sup> CD3/CD28 separation & activation magnetic beads	GMP-TL603	1mL/5mL
2	ActSep <sup>®</sup> CD3/CD28 activation magnetic beads	GMP-TL601	1mL

## Magnetic Bead Separation

### NanoSep<sup>™</sup> cell separation beads

NanoSep<sup>™</sup> cell separation beads was first developed by T&L Biotechnology in China. There are 250nm size beads which can deplete cells without column; 50nm size beads can be used for enrichment or depletion which is quite comparable with market competitors.

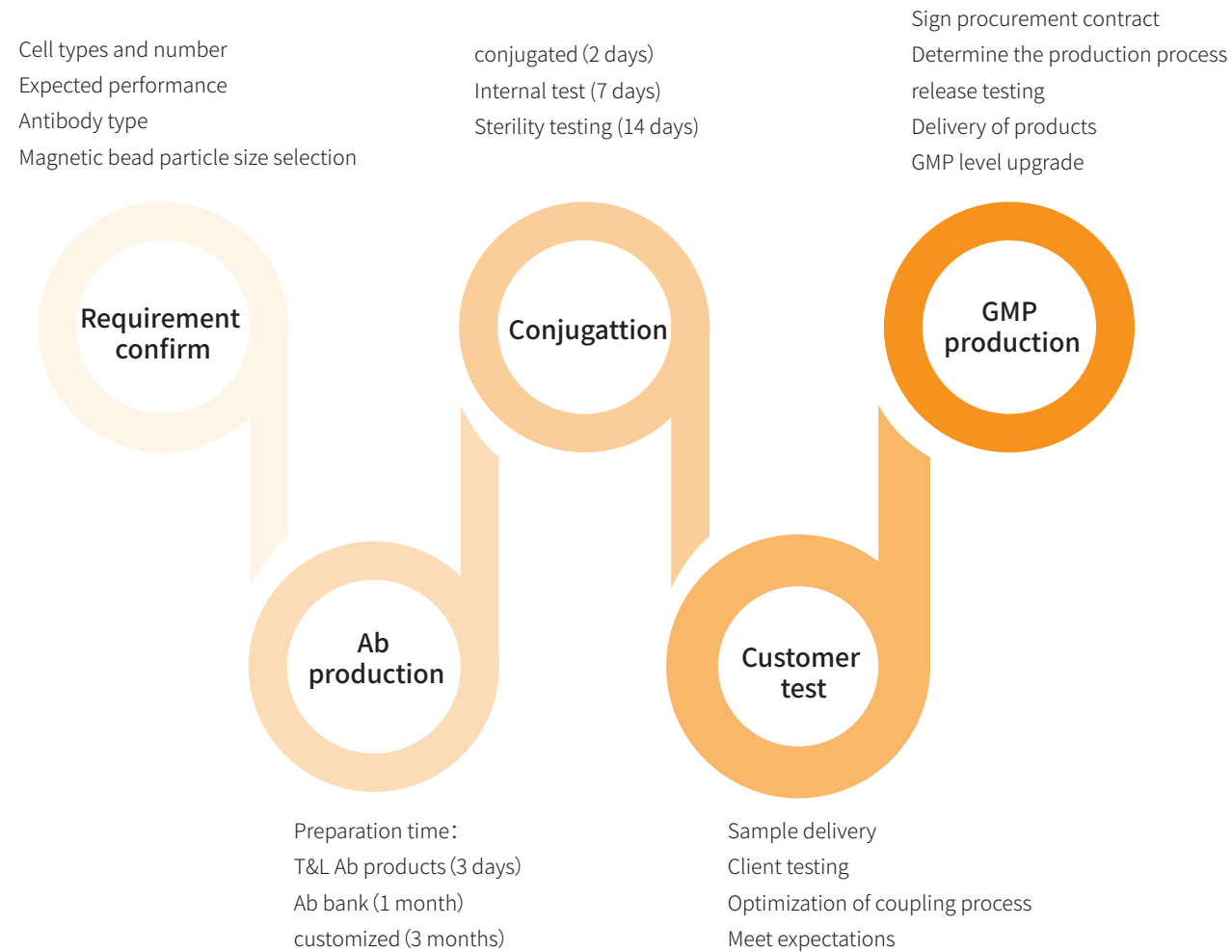


Product name	Product No.	Size	Application
NanoSep <sup>™</sup> column-free CD3 beads	TL-621	2 mL	Depletion
NanoSep <sup>™</sup> CD3 beads	TL-622	2 mL	Enrichment/Depletion
NanoSep <sup>™</sup> CD4 beads	TL-623	2 mL	Enrichment/Depletion
NanoSep <sup>™</sup> CD8 beads	TL-624	2 mL	Enrichment/Depletion
NanoSep <sup>™</sup> CD3 beads	GMP-TL622	5 mL	Enrichment/Depletion
NanoSep <sup>™</sup> CD4 beads	GMP-TL623	5 mL	Enrichment/Depletion
NanoSep <sup>™</sup> CD8 beads	GMP-TL624	5 mL	Enrichment/Depletion

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## Magnetic bead customization service

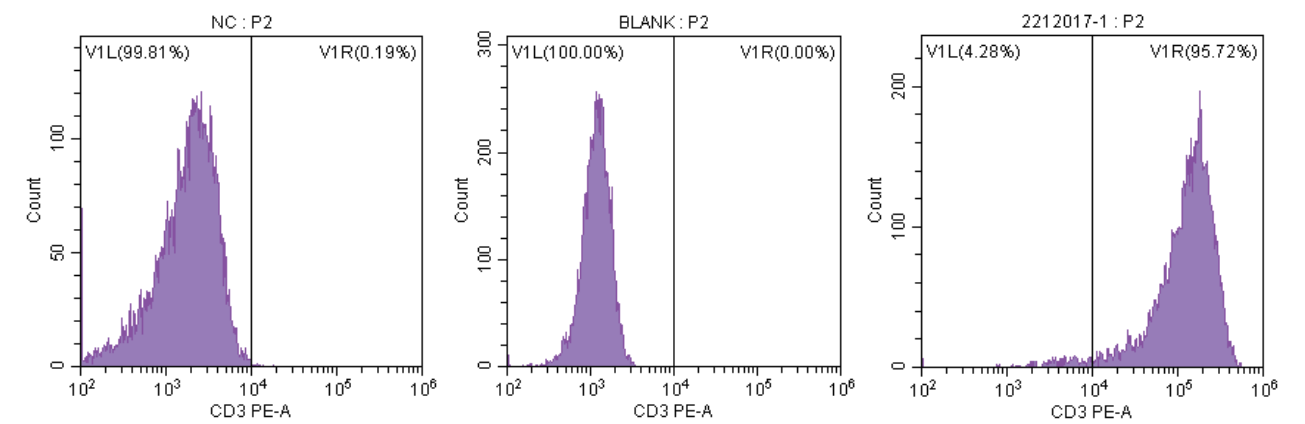


## Activation/Differentiation

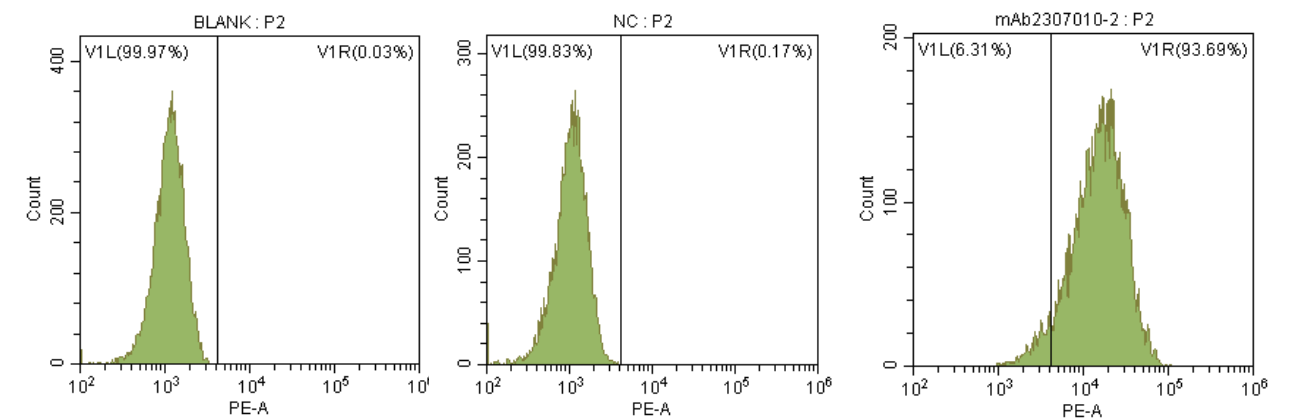
### Monoclonal antibody

No.	Product name	Art.No	Specifications
1	Anti human CD3 monoclonal antibody	GMP-TL101	500 µg
2	Anti human CD28 monoclonal antibody	GMP-TL102	500 µg
3	Anti human CD16 monoclonal antibody	GMP-TL201	500 µg
4	Anti human CD20 monoclonal antibody	GMP-TL502	500 µg
5	Anti human CD52 monoclonal antibody	GMP-TL112	100 µg
6	Anti human CD137 monoclonal antibody	GMP-TL778	100 µg
7	Anti human (CD335)NKP46 monoclonal antibody	GMP-TL780	100µg/500µg
8	Anti human HER-2 monoclonal antibody	GMP-TL503	500 µg
9	Anti human PD-1 monoclonal antibody	GMP-TL106	500 µg

### CD3 mAb binding activity >90% (Flow)



### CD28 mAb binding activity >90% (Flow)



Provide testsample at least 7 days → The fastest deliverytime for R&D products is 1 month → GMP upgradetime 3-6 months

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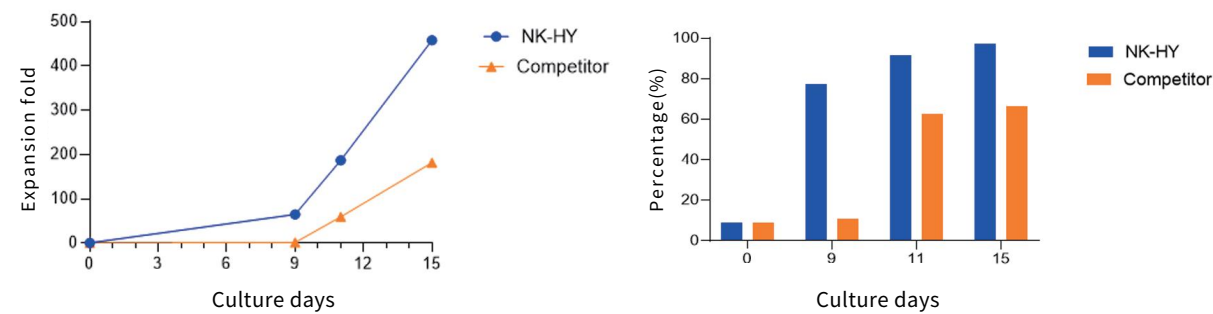


## Cell Culture

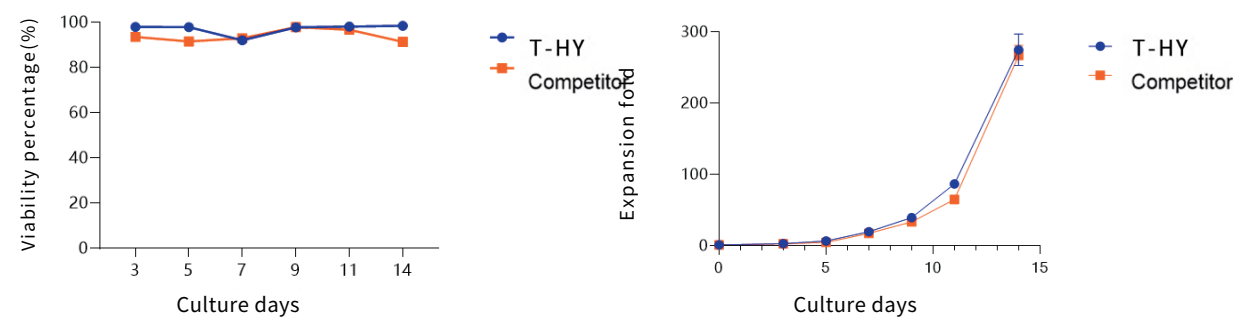
### Immune cell culture medium

AMMS® HY07 is the latest developed culture medium for immune cells by T&L Biotechnology. It is serum-free and animal-free, suitable for the expansion of human peripheral blood T cells and NK cells.

#### High proportion of NK cell expansion



#### Efficient T cell expansion



No.	Product name	Art.No	Specifications
1	AMMS® serum-free immunocyte medium	AS-HY07	1000mL
2	AMMS® serum-free T-cell medium	GMP-AS-HY10	1000mL
3	AMMS® serum-free NK-cell medium	GMP-AS-HY11	1000mL

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## Cell Culture

### Cell culture kit



Product name	Art.No	Specifications
AMMS® NK cell culture kit 2.0	AS-22	AMMS® NK cell culture kit 2.0 AMMS® NK serum-free medium ×2
AMMS® NKT cell culture kit	AS-07F	AMMS® NKT cell culture kit 2.0 AMMS® NKT serum-free medium ×2
AMMS® MSC cell culture kit 2.0	AS-13	AMMS® MSC additives 2.0 AMMS® MSC basic culture ×1
AMMS® CIK cell expansion reagent & medium kit	AS-15	AMMS® CIK cell expansion kit 2.0 AMMS® CIK serum-free medium ×2
AMMS® DC cell culture supplement	AS-03	500μL

## Cell Culture

### GMP grade human cytokines & growth factor

#### Immune cell

Product name	Art.No	Expression system	Specifications
Recombinant human IL-1 $\alpha$ protein	GMP-TL109	HEK293	10 $\mu$ g/20 $\mu$ g
Recombinant human IL-1 $\beta$ protein	GMP-TL513	HEK293	10 $\mu$ g/100 $\mu$ g
Recombinant human IL-2 protein(Efficient)	GMP-TL906	E.coli	50 $\mu$ g
Recombinant human IL-4 protein	GMP-TL301	CHO	50 $\mu$ g/100 $\mu$ g
Recombinant human IL-6 protein	GMP-TL512	HEK293	50 $\mu$ g/100 $\mu$ g
Recombinant human IL-7 protein	GMP-TL506	CHO	50 $\mu$ g/100 $\mu$ g
Recombinant human IL-12 protein	GMP-TL508	HEK293	50 $\mu$ g/100 $\mu$ g/200 $\mu$ g
Recombinant human IL-15 protein	GMP-TL202	HEK293	50 $\mu$ g/100 $\mu$ g/500 $\mu$ g
Recombinant human IL-18 protein	GMP-TL902	E.coli	50 $\mu$ g/100 $\mu$ g
Recombinant human IL-21 protein	GMP-TL509	CHO	50 $\mu$ g/100 $\mu$ g
Recombinant human IFN- $\gamma$ protein	GMP-TL105	HEK293	200 $\mu$ g
Recombinant human GM-CSF protein	GMP-TL302	HEK293	100 $\mu$ g
Recombinant human TNF $\alpha$ protein	GMP-TL303	HEK293	100 $\mu$ g
OK432	GMP-TL107	/	100 $\mu$ g/500 $\mu$ g

#### Stem cell

Product name	Art.No	Expression system	Specifications
Recombinant human IL-3 protein	GMP-TL501	HEK293	50 $\mu$ g/100 $\mu$ g
Recombinant human bFGF protein (FGF-2)	GMP-TL901	E.coli	50 $\mu$ g
Recombinant human VEGF 165 protein	GMP-TL612	HEK293	50 $\mu$ g/100 $\mu$ g
Recombinant human EGF protein	GMP-TL613	HEK293	50 $\mu$ g/100 $\mu$ g
Recombinant human FLT3 Ligand protein	GMP-TL505	HEK293	50 $\mu$ g
Recombinant human SCF protein	GMP-TL504	HEK293	50 $\mu$ g/100 $\mu$ g
Recombinant human PDGF-BB protein	GMP-TL644	HEK293	50 $\mu$ g/100 $\mu$ g
Recombinant human TGF- $\beta$ 1 protein	GMP-TL643	HEK293	50 $\mu$ g/100 $\mu$ g
Recombinant human TGF- $\beta$ 2 protein	GMP-TL645	HEK293	50 $\mu$ g
Recombinant human TGF- $\beta$ 3 protein	GMP-TL646	HEK293	50 $\mu$ g
Recombinant human BMP-2 protein	GMP-TL634	HEK293	50 $\mu$ g
Recombinant human BMP-4 protein	GMP-TL607	HEK293	50 $\mu$ g
Recombinant human LIF protein	GMP-TL633	HEK293	50 $\mu$ g/100 $\mu$ g
Recombinant human EPO protein	GMP-TL636	HEK293	50 $\mu$ g/100 $\mu$ g
Recombinant human Vitronectin protein	GMP-TL651	HEK293	100 $\mu$ g
Recombinant human TPO protein	GMP-TL650	HEK293	50 $\mu$ g
Recombinant human HGF protein	GMP-TL765	HEK293	50 $\mu$ g/100 $\mu$ g
Recombinant human Laminin511E8 protein	GMP-TL766	HEK293	100 $\mu$ g/500 $\mu$ g
Recombinant human SHH (C24II) protein	GMP-TL767	E.coli	50 $\mu$ g/100 $\mu$ g
Recombinant Human Activin A Protein	GMP-TL768	E.coli	50 $\mu$ g/100 $\mu$ g
Recombinant human M-CSF protein	GMP-TL535	E.coli	50 $\mu$ g/100 $\mu$ g

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## Cell Culture

### HEK293 cell culture solution

Product name	Art.No	Specifications
AMMS <sup>®</sup> HEK293 serum-free medium	AS-11	1000 m L
AMMS <sup>®</sup> HEK293 feed medium	AS-18	100 m L
AMMS <sup>®</sup> HEK293 transfection reagent	AS-19	1.5 m L



# Gene Modification

## Tool enzyme

No.	Product name	Art.No	Specifications
1	T7 RNA polymerase	GMP-TLR004	5000U/25000U
2	SP6 RNA polymerase	GMP-TLR001	5000U/25000U
3	CAS 9 nuclease	GMP-TLR005	90pmol

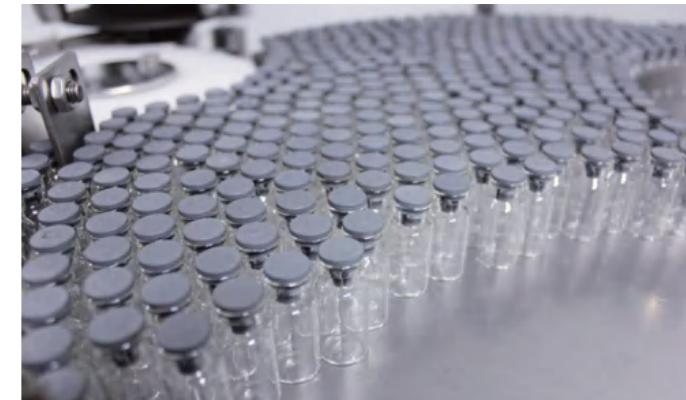


- ISO9001 quality system certification, ISO13485 medical device quality management system certification
- Animal-free, pharmaceutical grade raw and auxiliary materials
- Complete equipment certification and personnel training



### Filling

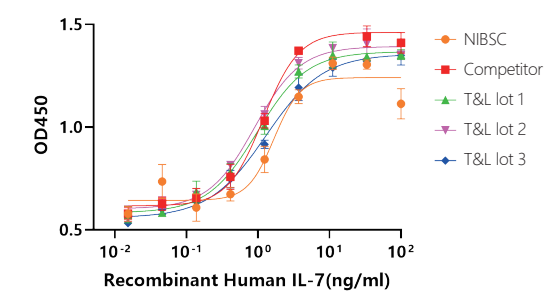
- Automated aseptic filling
- A-level filling environment



### Quality control

- high batch stability
- Provide COA files for each batch
- Functional testing
- Declaration support

### Recombinant Human IL-7 stimulates proliferation of PBMC



Product QC report			
Report NO.: 20230072			
Basic Information			
Name	Recombinant Human Vitronecetin Protein		
Batch number	2303008	Specification	100µg/plasm
Catalog number	GMP-TL01-0100	Storage condition	2-8°C
Production Date	March 15, 2023	Valid until	March 30, 2023
Test Items			
Project	Reference range	Result	
Differentiate	SDS-PAGE(Reduced/non-reduced)	Compliance	
Physical properties	Freeze-dried preparation, white loose body in form, and clear liquid after reconstitution	Compliance	
Visible foreign matter	No foreign bodies were seen	Compliance	
Capacity of loading	Not lower than the identification volume	Compliance	
Mycoplasma	PCR method	Compliance	
Sterility test	Direct method	Compliance	
Moisture	≤5.0%	Compliance	
pH value	6.5-7.5	7.20	
Endotoxin	<0.1EU/µg	<0.1EU/µg	
Purity	SDS-PAGE	Compliance	
Detection of host cell protein residue	ELISA method host protein residues in every samples ≤ 100 ppm	Compliance	
Adsorb	hPS cells adhere well to the wall	Compliance	
Test basis: Chinese Pharmacopoeia & T&L Biotechnology Internal standards			
Conclusion: Samples are in compliance with product requirements.			
Reported by: Zhen Min	Date of report: March 22, 2023		
Approved by: Xu Zhang	Approval date: March 22, 2023		

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