



**Comprehensive Solutions for  
Cell and Gene Therapy**

Product Manual

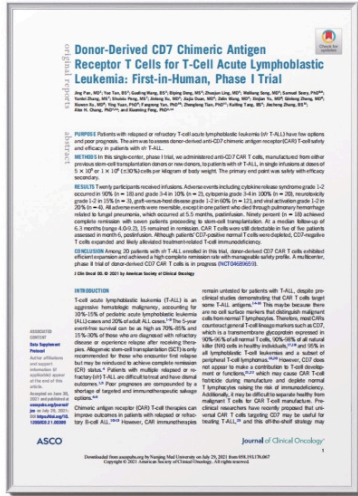
**Distributed by:**

**CliniSciences Group**



T&L Biotechnology Co., Ltd.

## Boost Your Research with T&L Biotechnology's Magnetic Beads



As a leading provider in the biotechnology sector, T&L Biotechnology offers an advanced range of magnetic beads designed to elevate your research in cell separation and activation. Our products, such as the ActSep® CD3/CD28 Separation & Activation Magnetic Beads and the series, are tailored to meet the rigorous demands of modern scientific research. All of them are direct labeling, with humanized antibodies. T&L biotechnology's magnetic beads are applicable with MARS® Bar platform, CliniMACS® Plus, CliniMACS Prodigy® and other mainstream platforms on the market.

## We help researchers with their research journey

We help our clients in successfully completing Phase 1 clinical trials in China and preclinical studies for a dual applications, aimed at securing drug approvals in both China and the United States.

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# 01 ABOUT US

**T&L Biotechnology Ltd.** focuses on the research and development of GMP-grade upstream raw materials and reagents for cell and gene therapy (CGT). We are committed to providing comprehensive product and service solutions for CGT customers. Our products include cell separation and activation magnetic beads, eukaryotic and prokaryotic recombinant proteins, serum-free media, cell culture kits, and more.

We have a 3200m<sup>2</sup> research and development laboratory and a GMP-grade clean workshop, which includes platforms for cell separation magnetic bead development, eukaryotic and prokaryotic protein expression engineering, and serum-free media development. Our operations conform to both ISO13485 and ISO9001 Quality Management System Standards, and some of our products have been FDA DMF filed.

**Vision**  
Let life science benefit everyone in the world

**Mission**  
Provide reliable products and services for life science

**Values**  
Innovation, diligently, sincerity

50% of our team is dedicated to R&D and production

Over 12 years of experience in CGT reagent R&D

Established in 2011

3200m<sup>2</sup> R&D and production facility

# 02 Quality Management Systems

- ISO9001 Certified Quality System
- ISO13485 Medical Device Quality Management System Certification



## DMF Documentation Filed

Catalog No.	Product Name	DMF Filing No.
GMP-TL101	Anti-Human CD3 Monoclonal Antibody	38125
GMP-TL102	Anti-Human CD28 Monoclonal Antibody	38820
GMP-TL506	Recombinant Human IL-7 Protein	38126
GMP-TL202	Recombinant Human IL-15 Protein	38127
GMP-TL509	Recombinant Human IL-21 Protein	39117
GMP-TL651	Recombinant Human Vitronectin Protein	39726
GMP-TL603	ActSep <sup>®</sup> CD3/CD28 Separation Activation Magnetic Beads	38124
GMP-TL622-5000	MaxSortin <sup>™</sup> CD3 Separation Magnetic Beads	39579
GMP-TL623-5000	MaxSortin <sup>™</sup> CD4 Separation Magnetic Beads	39625
GMP-TL624-5000	MaxSortin <sup>™</sup> CD8 Separation Magnetic Beads	39668
AS-13	AMMS <sup>®</sup> MSC Cell Culture Kit 2.0	35589
AS-22	AMMS <sup>®</sup> NK Cell Culture Kit 2.0	35588

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AS-22	AMMS <sup>®</sup> NK Cell Culture Kit 2.0	35588

## GMP Production Workshop



# GMP GRADE

## 03 Magnetic Beads

### 4.5µm ActSep® CD3/CD28 Separation & Activation Magnetic Beads

#### T-cell separation and activation in one

The ActSep® CD3/CD28 beads are specifically designed for the separation and activation of human CD3+ T cells. These beads simplify the activation and expansion process by providing both primary and co-stimulatory signals needed for T cell activation without the need for antigen-presenting cells. This makes them ideal for applications in CAR-T and other T cell culture systems, ensuring high efficiency and reproducibility in your experiments.

#### Product Features

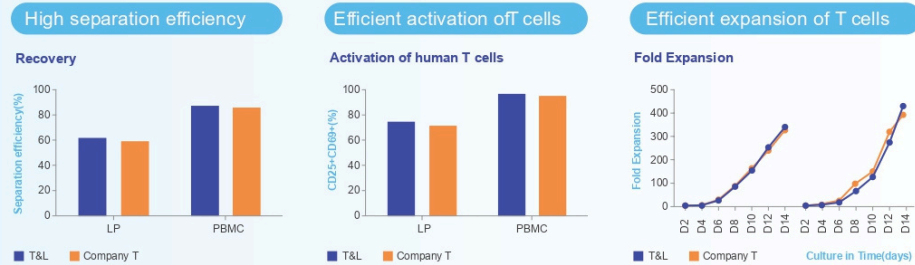


Figure 1. T cells were isolated from leukapheresis (LP) and peripheral blood mononuclear cell (PBMC) using ActSep®CD3/CD28 separation & activation magnetic beads at a ratio of 1:1 T-cell-to-beads(A), activation status of T cells after 48 hours of stimulation (B), and expansion in culture up to 14 days (C).

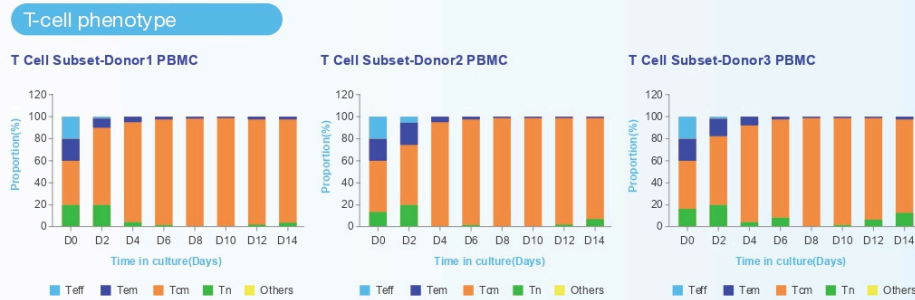


Figure 2. Changes in T cell phenotype. T cells were isolated from PBMC samples and cultured for 14 days using ActSep® CD3/CD28 separation & activation magnetic beads at a ratio of 1:1 T-cell-to-beads.

Product Name	Cat.No.	Capacity	DMF File
ActSep® CD3/CD28 separation and activation magnetic bead	GMP-TL603	1mL/5mL	038124

### 50nm Magnetic Beads

Our series includes beads like the CD4, CD8, and CD14, each designed for the efficient separation and enrichment of specific T cell subsets from peripheral blood mononuclear cells (PBMCs). The 50nm size ensures high specificity and efficiency, allowing for precise cell sorting and enrichment, which is crucial for downstream applications in immunology and cell therapy research.

Product Name	Grade	Model No.	Specification
<b>T cell related products</b>			
MaxSortin™ CD3 Separation Magnetic Beads	RUO	TL-622	2mL
MaxSortin™ CD4 Separation Magnetic Beads	RUO	TL-623	2mL
MaxSortin™ CD8 Separation Magnetic Beads	RUO	TL-624	2mL
MaxSortin™ CD3 Separation Magnetic Beads	GMP	GMP-TL622-5000	5mL
MaxSortin™ CD4 Separation Magnetic Beads	GMP	GMP-TL623-5000	5mL
MaxSortin™ CD8 Separation Magnetic Beads	GMP	GMP-TL624-5000	5mL
Actcel T Cell Activation Reagent	RUO	TL-6001-1000	1ml
<b>NK cell related products</b>			
MaxSortin™ CD3 Separation Magnetic Beads	RUO	TL-622	2mL
MaxSortin™ CD3 Separation Magnetic Beads	GMP	GMP-TL622-5000	5mL
<b>Monocyte related products</b>			
MaxSortin™ CD14 Separation Magnetic Beads	RUO	TL-625	2mL
MaxSortin™ CD14 Separation Magnetic Beads	GMP	GMP-TL625-2000	2mL
<b>New Product Coming</b>			
<b>T cell sorting</b>			
TCRVδ1 Separation Magnetic Beads			
TCRVαβ Separation Magnetic Beads			
TCRVγδ Separation Magnetic Beads			
<b>Monocytes cells sorting</b>			
CD14 Separation Magnetic Beads			
<b>NK cell sorting</b>			
CD56 Separation Magnetic Beads			
<b>HSC cell sorting</b>			
CD34 Separation Magnetic Beads			
<b>Leukocytes cell sorting</b>			
CD45 Separation Magnetic Beads			
<b>Plasma cell sorting</b>			
CD138 Separation Magnetic Beads			

## Key Benefits of T&L Biotechnology's Magnetic Beads

**High Efficiency**

Our magnetic beads offer robust and efficient cell separation, ensuring high yield and purity.

**Versatility**

Suitable for a wide range of applications, including cell therapy, immunology research, and more.

**Customizability**

We provide tailored solutions to meet specific research needs, ensuring that you have the right tools for your unique experiments.

## Product Features

### T cell Separation

Figure 3. T cell isolated from peripheral blood mononuclear cells (PBMC) using CD4 beads and CD8 beads. (A) RUO grade (B) GMP grade.

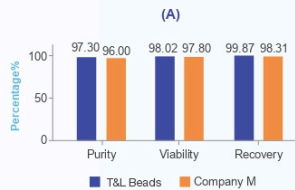
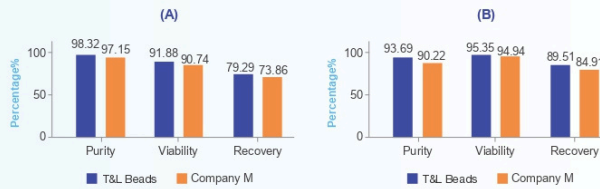
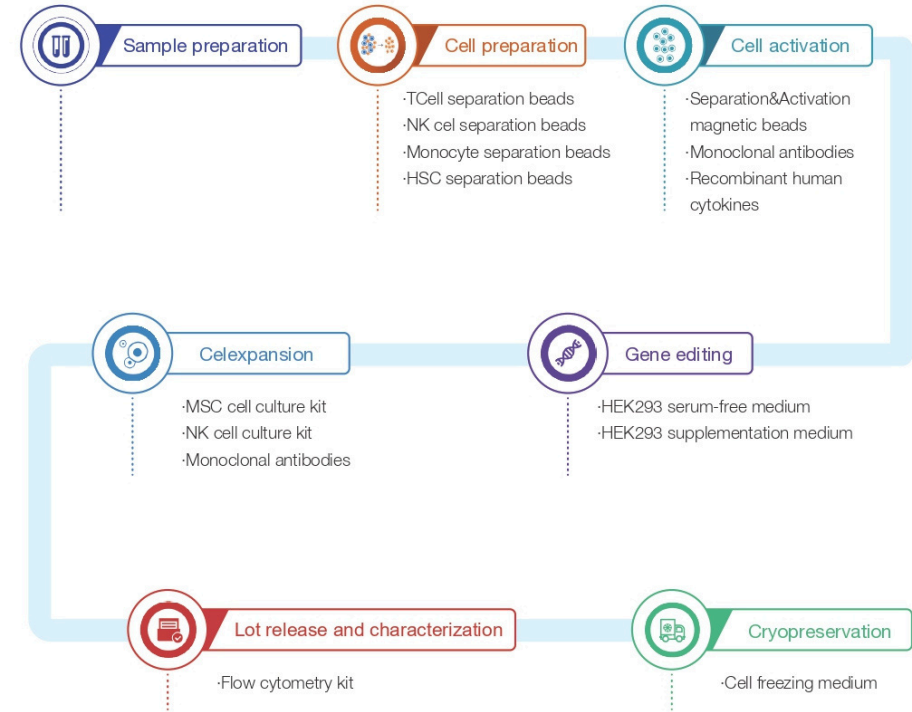
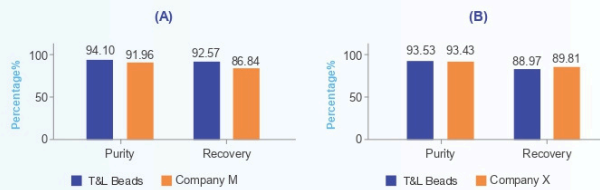


Figure 4. CD3<sup>+</sup>T cell isolated from peripheral blood mononuclear cells (PBMC) using CD3 beads (RUO grade). (A) Enrichment (B) Depletion.

### Monocyte Separation

Figure 5. Monocyte isolated from peripheral blood mononuclear cells (PBMC) using CD14 beads. (A) Monocyte separation with column (B) Column-free sorting, using the MARS® Bar platform.



## 04 Recombinant proteins

### Example of Tabular Format for Section on Commonly Used Recombinant Proteins

Protein Type	Examples	Function	Applications
Growth Factors	FGF, EGF, PDGF	Promote cell growth and differentiation	Wound healing, tissue engineering
Cytokines	IL-2, IL-12, TNF- $\alpha$	Modulate immune responses	Cancer therapy, immune deficiency treatments
Chemokines	CCL, CXCL families	Guide cell migration	Inflammatory responses, immune cell trafficking
Stem Cell Factors	SCF, FLT3 ligand	Support stem cell maintenance and proliferation	Stem cell therapies, regenerative medicine

## T&L Biotechnology Recombinant Proteins List

Category	Type	Function
<b>T cell related products</b>		
GMP-TL906	IL-2	Generate and maintain Treg cells to maintain autoimmunity Stimulate the proliferation of activated T cells and produce cytotoxic (CD8 <sup>+</sup> ) T cells
GMP-TL506	IL-7	Generation of naïve T cells and memory T cell subsets
GMP-TL202	IL-15	Stimulate the proliferation and activation of T cells
GMP-TL101	Anti-Human CD3 mAb	Antigen recognition, signal transduction and T cell activation
GMP-TL102	Anti-Human CD28 mAb	Induces T cell differentiation and proliferation
GMP-TL502	Anti-Human CD52 mAb	T cell activation and expansion
GMP-TL778	Anti-Human CD137 mAb	Induces T cell proliferation and cytokine secretion
<b>NK cell related products</b>		
GMP-TL906	IL-2	Activate and maintain NK cells
GMP-TL506	IL-7	Promote the differentiation and proliferation of NK cells
GMP-TL508	IL-12	Induce NK cells and cytotoxic T cells to produce IFN- $\gamma$ and enhance cytotoxicity
GMP-TL202	IL-15	Maintain the persistence of NK cell effects
GMP-TL902	IL-18	Induced NK cell activity and NK cell subpopulation ratio
GMP-TL902	IL-21	Induces NK maturation, enhances its cytotoxicity, induces NK cells to secrete IFN- $\gamma$ , perforin, etc., and has a regulatory effect on NKT cells
GMP-TL112	Anti-Human CD52 mAb	Activation and expansion of NK cells
<b>IPSC cell related products</b>		
GMP-TL906	IL-2	Induce IPSC cells to differentiate into regulatory T cells (Treg)
GMP-TL511	IL-3	Induce IPSC cells to differentiate into macrophages and monocytes
GMP-TL613	EGF	Induce IPSC cells to differentiate into hepatocytes
GMP-TL644	PDGF-BB	Induce IPSC cells to differentiate into cardiomyocytes
GMP-TL505	FLT3 Ligand	Induce IPSC cells to differentiate into NK cells
<b>CIK cell related products</b>		
GMP-TL505	IL-2	Stimulate the proliferation and activation of CIK cells
GMP-TL105	IFN- $\gamma$	Co-stimulates CIK cytotoxicity with IL-2
<b>B cell related products</b>		
GMP-TL112	Anti-Human CD20 mAb	Targeted induction of B cell apoptosis

### Coming Soon

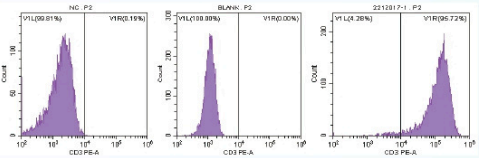
TGF- $\beta$ 1  
  CD16mAb  
  IL-4  
  TPO  
  LN511-E8  
  BMP-4  
  EPO

Category	Product Name	Source	Specification
GMP-TL906	Recombinant Human IL-2 Protein	E.coli	100 $\mu$ g
GMP-TL511	Recombinant Human IL-3 Protein	HEK293	50 $\mu$ g/100 $\mu$ g
GMP-TL512	Recombinant Human IL-6 Protein	HEK293	50 $\mu$ g/100 $\mu$ g
GMP-TL506	Recombinant Human IL-7 Protein	CHO	50 $\mu$ g/100 $\mu$ g
GMP-TL508	Recombinant Human IL-12 Protein	HEK293	50 $\mu$ g/100 $\mu$ g
GMP-TL202	Recombinant Human IL-15 Protein	HEK293	50 $\mu$ g/100 $\mu$ g
GMP-TL902	Recombinant Human IL-18 Protein	E.coli	50 $\mu$ g/1mg
GMP-TL509	Recombinant Human IL-21 Protein	CHO	50 $\mu$ g/100 $\mu$ g
GMP-TL105	Recombinant Human IFN- $\gamma$ Protein	HEK293	200 $\mu$ g
GMP-TL302	Recombinant Human GM-CSF Protein	HEK293	100 $\mu$ g
GMP-TL903	Recombinant Human Fibronectin(FN) Protein	E.coli	50 $\mu$ g/250 $\mu$ g
GMP-TL303	Recombinant Human TNF $\alpha$ Protein	HEK293	100 $\mu$ g
GMP-TL901	Recombinant Human bFGF Protein	E.coli	50 $\mu$ g
GMP-TL612	Recombinant Human VEGF 165 Protein	HEK293	50 $\mu$ g/100 $\mu$ g
GMP-TL613	Recombinant Human EGF Protein	HEK293	50 $\mu$ g/100 $\mu$ g
GMP-TL505	Recombinant Human FLT3 Ligand Protein	HEK293	50 $\mu$ g
GMP-TL504	Recombinant Human SCF Protein	HEK293	50 $\mu$ g/100 $\mu$ g
GMP-TL644	Recombinant Human PDGF-BB Protein	HEK293	50 $\mu$ g/100 $\mu$ g
GMP-TL651	Recombinant Human Vitronectin Protein	HEK293	100 $\mu$ g
GMP-TL695	Recombinant Human 4-1BB Ligand Protein	HEK293	50 $\mu$ g/100 $\mu$ g
GMP-TL765	Recombinant Human HGF Protein	HEK293	100 $\mu$ g
GMP-TL646	Recombinant Human TGF- $\beta$ 3 Protein	HEK293	100 $\mu$ g
GMP-TL633	Recombinant Human LIF Protein	HEK293	100 $\mu$ g
GMP-TL101	Anti-human CD3 monoclonal antibody	/	500 $\mu$ g
GMP-TL102	Anti-human CD28 monoclonal antibody	/	500 $\mu$ g
GMP-TL502	Anti-human CD20 monoclonal antibody	/	500 $\mu$ g
GMP-TL112	Anti-human CD52 monoclonal antibody	/	100 $\mu$ g
GMP-TL778	Anti-human CD137 monoclonal antibody	/	100 $\mu$ g
GMP-TL107	OK432	/	50 $\mu$ g/100 $\mu$ g
TL-109-0010	Recombinant Human IL-1 $\alpha$ Protein	E.coli	100 $\mu$ g
TL-513-0100	Recombinant Human IL-1 $\beta$ Protein	E.coli	100 $\mu$ g
TL-514-0050	Recombinant Human M-CSF Protein	E.coli	10 $\mu$ g/50 $\mu$ g
TL-301-0100	Recombinant Human IL-4 Protein	HEK293	100 $\mu$ g
TL-636	Recombinant Human EPO Protein	HEK293	50 $\mu$ g/100 $\mu$ g
TL-910-0050	Recombinant Human Activin A Protein	HEK293	10 $\mu$ g/50 $\mu$ g
TL-770-0050	Recombinant Human BDNF Protein	E.coli	50 $\mu$ g
TL-901-0010	Recombinant Human bFGF Protein	E.coli	10 $\mu$ g
TL-613-0010	Recombinant Human EGF Protein	HEK293	10 $\mu$ g
TL-782-0050	Recombinant Human FGF4 Protein	E.coli	50 $\mu$ g
TL-771-0050	Recombinant Human GDNF Protein	E.coli	50 $\mu$ g
TL-302-0010	Recombinant Human GM-CSF Protein	HEK293	10 $\mu$ g
TL-105-0010	Recombinant Human IFN- $\gamma$ Protein	HEK293	10 $\mu$ g
TL-642-0050	Recombinant Human Noggin Protein	CHO	50 $\mu$ g
TL-772-0050	Recombinant Human OSM Protein	HEK293	50 $\mu$ g
TL-504-0010	Recombinant Human SCF Protein	HEK293	10 $\mu$ g
TL-643	Recombinant Human TGF- $\beta$ 1 Protein	HEK293	10 $\mu$ g/50 $\mu$ g
TL-303-0010	Recombinant Human TNF $\alpha$ Protein	HEK293	10 $\mu$ g
TL-783-0050	Recombinant Human Wnt3a Protein	HEK293	50 $\mu$ g
TL-766-0100	Recombinant Human Laminin-511 E8 Protein	HEK293	100 $\mu$ g

## T cell — associated monoclonal antibodies

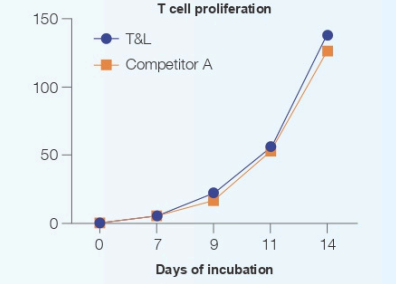
Anti-human CD3 monoclonal antibody (GMP-TL101) .  
 Customers have been used for IND (Acceptance No.: CXSL2200061 & CXSL2300290)

CD3 mAb binding activity > 90% (Flow cytometry)



Number	Sample concentration	CD3+% average
sample1	100ng/ml	94.94
sample2	100ng/ml	94.90
sample3	100ng/ml	95.63

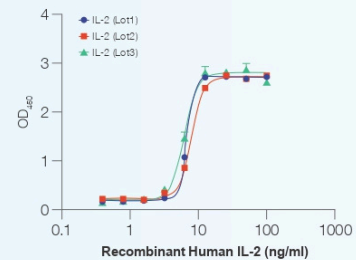
T cell expansion is comparable to OKT3



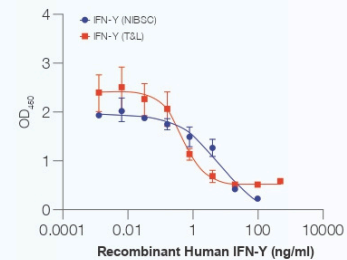
## CIK cell — associated cytokines

High biological activity and excellent batch stability

Recombinant Human IL-2 stimulates proliferation of CTLL-2

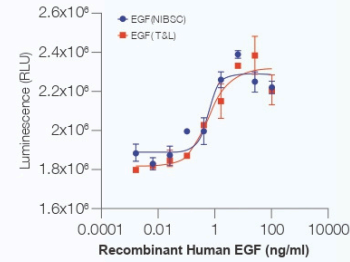


Recombinant Human IFN-γ inhibits the proliferation of HT-29

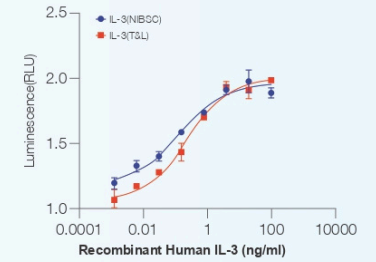


## IPSC cell — associated cytokines

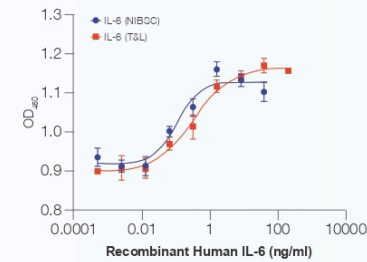
Recombinant Human EGF stimulates proliferation of NIH/3T3



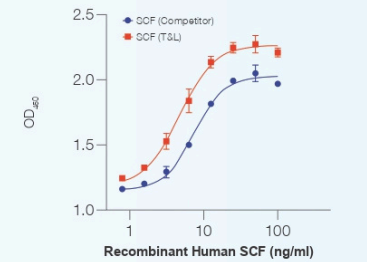
Recombinant Human IL-3 stimulates proliferation of TF-1



Recombinant Human IL-6 stimulates proliferation of TF-1

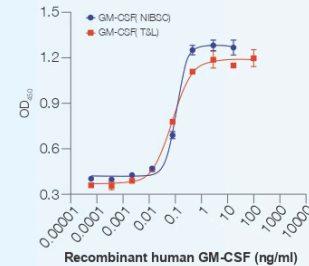


Recombinant Human SCF stimulates proliferation of Mo7e

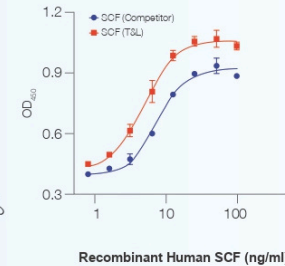


## HSC cell — associated cytokines

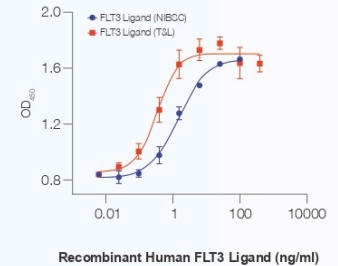
Recombinant Human GM-CSF stimulates proliferation of TF-1



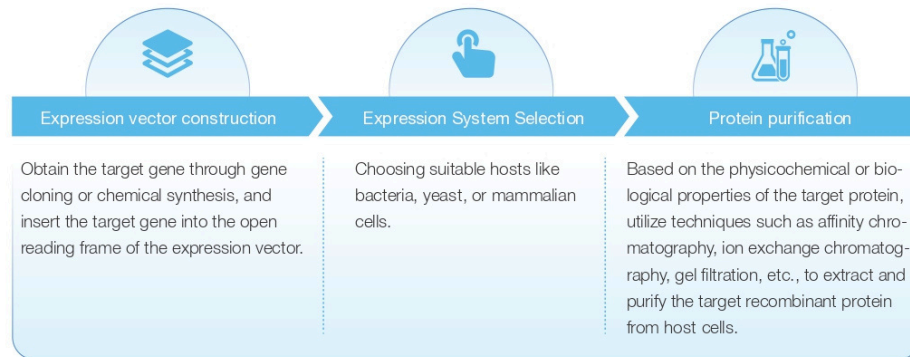
Recombinant Human SCF stimulates proliferation of Mo7e



Recombinant Human FLT3 Ligand stimulates proliferation of OCI-AML5



### Production Process



### Commonly Used Recombinant Proteins in Cell Therapy

#### Growth Factors

- FGF (Fibroblast Growth Factor)
- EGF (Epidermal Growth Factor)
- PDGF (Platelet-Derived Growth Factor)

#### Cytokines

- IL-2 (Interleukin-2)
- IL-12 (Interleukin-12)
- TNF- $\alpha$  (Tumor Necrosis Factor-alpha)

#### Chemokines

- CCL and CXCL Families

#### Stem Cell Factors

- SCF (Stem Cell Factor) FLT3 Ligand

### Preparation and Quality Control of Recombinant Proteins

#### Large-Scale Production Techniques

The large-scale production of recombinant proteins is an important field in the biotechnology and pharmaceutical industries, involving the use of genetic engineering technology to produce proteins with specific functions on a large scale outside the body. By utilizing fermentation technology to control culture conditions such as temperature, pH, and nutrient supply, it is possible to achieve high-density growth of host cells and efficient expression of the target protein. Additionally, large-scale production in facilities that meet Good Manufacturing Practice (GMP) standards can meet commercial demands such as clinical treatment.



#### Low batch variability

Recombinant Human IL-7 stimulates proliferation of PBMC

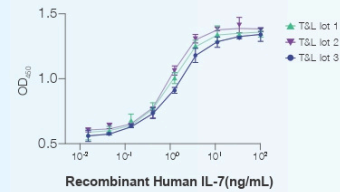


Figure 6. The GMP I-7 product has high batch-to-batch consistency.

#### High specific activity

Recombinant Human IL-15 stimulates proliferation of CTLL-2

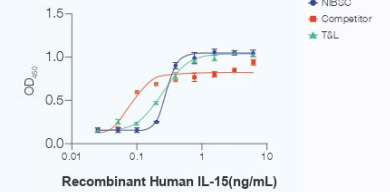


Figure 7. The specific activity of GMP IL-15 is  $>1 \times 10^7$  IU/mg (NIBSC Code: 90 /530)

#### Quality control



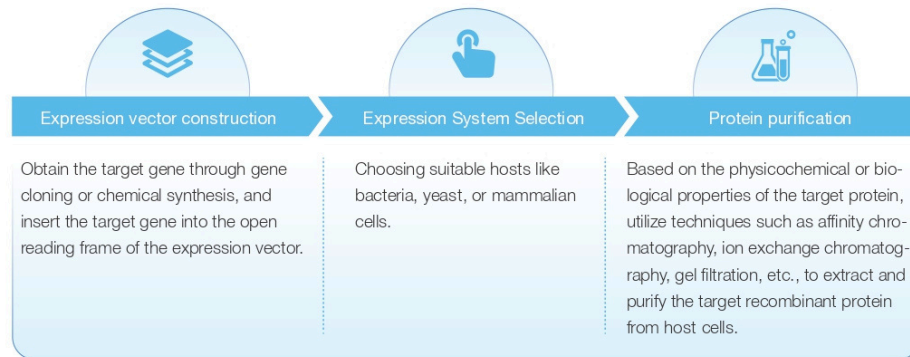
#### Stability and Storage Conditions

“ Maintaining stability through proper storage is essential for the efficacy of recombinant proteins. ”





### Production Process



### Commonly Used Recombinant Proteins in Cell Therapy

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- EGF (Epidermal Growth Factor)
- PDGF (Platelet-Derived Growth Factor)

#### Cytokines

- IL-2 (Interleukin-2)
- IL-12 (Interleukin-12)
- TNF- $\alpha$  (Tumor Necrosis Factor-alpha)

#### Chemokines

- CCL and CXCL Families

#### Stem Cell Factors

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#### Low batch variability

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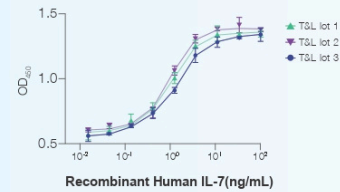


Figure 6. The GMP I-7 product has high batch-to-batch consistency.

#### High specific activity

Recombinant Human IL-15 stimulates proliferation of CTLL-2

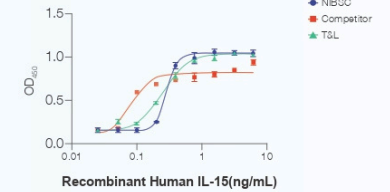


Figure 7. The specific activity of GMP IL-15 is  $>1 \times 10^7$  IU/mg (NIBSC Code: 90 /530)

#### Quality control



#### Stability and Storage Conditions

“ Maintaining stability through proper storage is essential for the efficacy of recombinant proteins. ”



## Case Studies

### Therapeutic Applications

therapeutic agents in the treatment of various diseases, such as cancer, autoimmune disorders, and genetic disorders. Examples include insulin for diabetes, growth factors for tissue repair, and monoclonal antibodies for targeted therapy.

### Diagnostic Tools

employed in diagnostic tests, such as immunoassays and molecular diagnostics, for the detection of specific biomarkers or pathogens. They play a crucial role in accurate disease diagnosis and monitoring.

### Vaccine Development

essential components of vaccines, where they can serve as antigens to stimulate the immune system to produce protective antibodies.

### Research Tools

valuable research tools for studying protein structure, function, and interactions. They are used in basic research to elucidate disease mechanisms, drug targets, and pathways, enabling the discovery of

## Forecast of Recombinant Proteins in Cell Therapy

The application prospects are very broad, covering various stages from basic research to clinical applications



## 05 Medium

At T&L Biotechnology, we specialize in providing high-quality, GMP-grade cell culture media designed to meet the rigorous demands of modern research and clinical applications. Our products are developed through extensive research and are manufactured under strict quality controls to ensure consistency and reliability.



Product Name	Model No.	Specification	Storage Conditions	Quantity
<b>MSC Cell Culture Kit</b>				
AMMS® MSC Cell Culture Kit 2.0	AS-13	25mL	-20°C	1 bottle
AMMS® MSC Cell Culture Kit 2.0(Phenol Red Free)	AS-33	500mL	2-8°C	1 bottle
<b>HEK293 Serum-Free Medium</b>				
AMMS® HEK293 Serum-free Medium	AS-11	1000mL	Store at 2-8°C ,keep away from light	
AMMS® HEK293 Supplementation Medium	AS-18	100mL	Store at 2-8°C ,keep away from light	
<b>CIK Cell Expansion Reagent &amp; Medium Kit</b>				
AMMS® CIK Cell Expansion Reagent & Medium Kit	AS-15	AMMS® CIK Cell Expansion Kit AMMS® CIK Serum-Free Mediumx2		
<b>Cell Culture Reagents</b>				
Cell Cryopreservation Solution	AS-36	100mL		
Lymphocyte Separation Solution	AS-37	100mL		
	AS-37L-200	200mL		
AMMS® Recombinant Cell Digestive Solution	AS-39	100mL		
AMMS® Pluripotent Stem Cell Digestive Solution	AS-40	100mL		
AMMS® Organoid-specific Matrigel	AS-41-5	5mL		
<b>New Product Coming</b>				
Completed Products				
AMMS® Pluripotent Stem Cell Medium (iPSC)				
AMMS® Recombinant Cell Digestion Reagent				
AMMS® Pluripotent Stem Cell Digestion Reagent				
Research Stage Products				
Umbilical Cord Blood NK Reagent Kit				
NK-HY Medium				
T-HY Medium				

## AMMS® MSC Cell Culture Kit



Tailored for mesenchymal stem cells, this kit supports robust growth and differentiation, crucial for regenerative medicine and cellular therapies.

### Key Products and Features



**No different animal origin**  
Does not cause alien risk, high safety, accelerate the declaration process

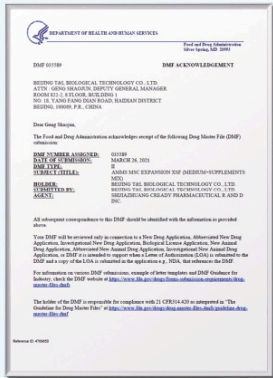


**FDA DMF filed**  
Can be sold abroad, the safety and effectiveness of the product is guaranteed



**Efficient cell expansion**  
Phenotypic and multidirectional differentiation characteristics were maintained while expansion

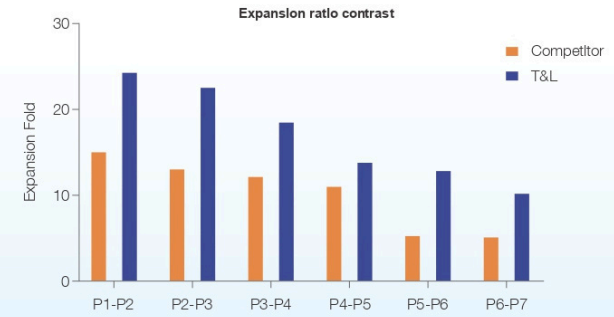
Product Name	Model No.	Specification	Storage Conditions	Quantity
AMMS® MSC Cell Culture Kit				
AMMS® MSC Cell Culture Kit 2.0	AS-13	25mL	-20°C	1 bottle
AMMS® MSC Cell Culture Kit 2.0 (Phenol Red Free)	AS-33	500mL	2-8°C	1 bottle



DMF documentation filed



### Excellent cell expansion

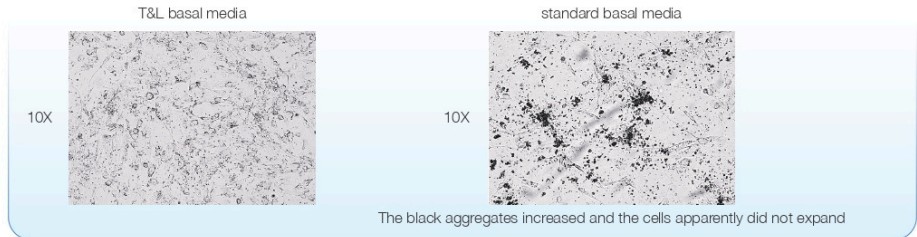


Sample: MSC cells (Frozen P1 generation cells)  
Cell viability: Cells cultured with T&L MSC kit expanded well

**Umbilical cord-derived Msc cells passaged from p1 to P7 show superior expansion compared to competitors.**

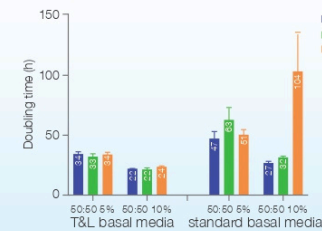
### AT-MSCs P7 after seeding in different conditions (Day 11)

2)50:50 10%

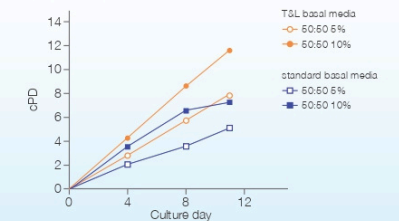


### AT-MSCs performance with FD-PLUS in both T&L and standard basal media

1) Doubling time



2) Cumulative Population Doubling (cPD)



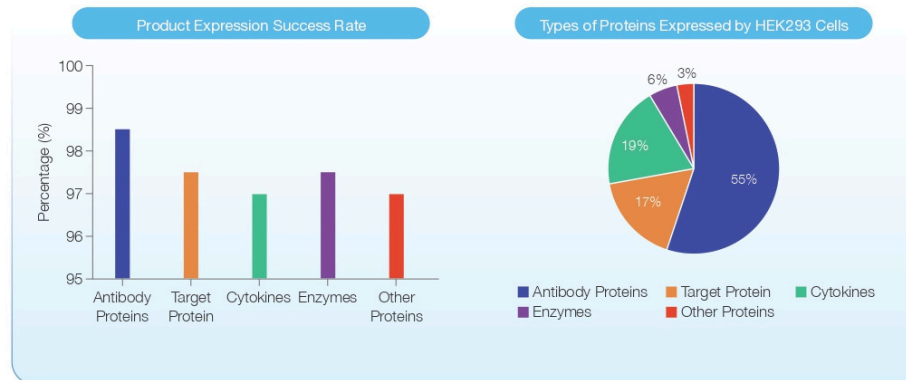
## AMMS® HEK293 Serum-Free Medium

Ideal for HEK293 cell culture, offering enhanced growth and viability without the complications of serum components.

### Key Products and Features

AMMS®HEK293 Serum-free Medium	AMMS®HEK293 Supplementation Medium	AMMS®HEK293 Transfection Reagent	AMMS®HEK293 Cell Shake Flask Series
Suitable for HEK293 suspension cells culture and transfection	Serum-free, animal component-free	High transfection efficiency and high protein expression levels	Available in various specifications with strict quality control
Free of any animal components, without glutamine	Chemically defined, contains phenol red, contains glutamine	Easy to operate, saving time	The highest level of sterile assurance, SAL=10 <sup>-6</sup>
Chemically defined, contains phenol red, contains glutamine	Maintains cell viability, enhances recombinant protein yield	Highly efficient and stable with strict quality control	Made of highly transparent polycarbonate material
High cell density and viability			Sterile, individually vacuum-packed

Product	Model No	Specification	Storage Conditions
AMMS®HEK293 Serum-free Medium	AS-11	1000mL	Store at 2-8°C, keep away from light
AMMS®HEK293 Supplementation Medium	AS-18	100mL	Store at 2-8°C, keep away from light



## Specialized Media Kits

CIK cells are a type of cytokine-induced killer cells, obtained by co-culturing human peripheral blood mononuclear cells with various cytokines (such as anti-CD3 monoclonal antibody, interleukin-2, interferon-gamma, and interleukin-1alpha) in vitro for a period of time. These cells are a heterogeneous group that simultaneously express the membrane proteins CD3 and CD56, hence they are called NK cell-like T lymphocytes. They exhibit potent anti-tumor activity similar to T lymphocytes and non-MHC-restricted tumor-killing characteristics of NK cells, making them highly effective in a wide range of tumor treatments in clinical settings.

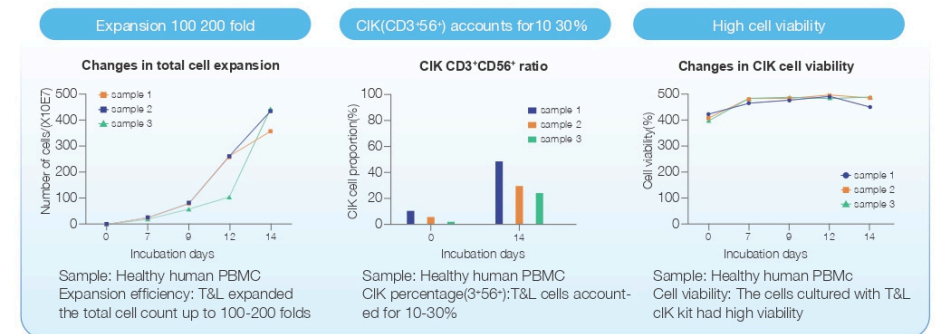
## AMMS® CIK Cell Expansion Reagent & Medium Kit

Specifically formulated for the expansion of cytokine-induced killer cells, facilitating cancer immunotherapy research.

### Key Products and Features

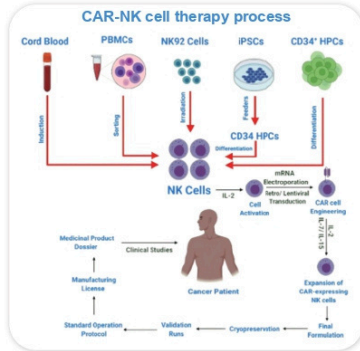
No serum, no animal origin ingredients	The cell expansion is fast, the operation is simple, and the expansion fold is 100-200 times	The phenotype was stable, and the CD3 <sup>+</sup> CD56 <sup>+</sup> phenotype of cultured cells was high, accounting for 10-30%
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Product Name	Model No	Storage Conditions
AMMS® CIK Cell Expansion Reagent & Medium Kit	AS-15	MMS®CIK Cell Expansion Kit AMMS® CIK Cell Expansion Kit AMMS®CIK Serum-Free Medium × 2



## AMMS® NK Cell Culture Kit

Designed to optimize the growth and function of natural killer cells, supporting advances in immunotherapy.



- Improved safety profile: Lower likelihood of causing Cytokine Release Syndrome (CRS), Immune Effector Cell-Associated Neurotoxicity Syndrome (ICANS), and Graft-versus-Host Disease (GvHD).
- Diverse mechanisms of cell activation and tumor killing: CAR-NK cells do not express antigen-specific recognition receptors, do not depend on MHC molecules for activation, but integrate signals from activating and inhibitory receptors downstream.
- Feasibility of “off-the-shelf” preparation: CAR-NK cells can be produced as a universal “off-the-shelf” product due to their broader availability and better safety profile of allogeneic NK cells compared to CAR-T cells, addressing the current
- challenges of long production cycles and individualized needs of CAR-T products.



Therefore, CAR-NK cell therapy holds promise as an alternative to CAR-T cell therapy in the future.

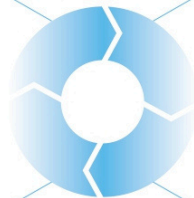


### Pure factor culture

Pure factor method (patent application), no feeder cells

### No foreign animal sources

Free of antibiotics, serum, xenozoological origin, contains glutamine



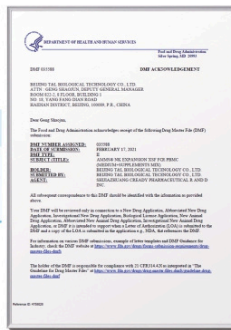
### Blood source

The blood sample can be PBMC Or UBMC

### Outstanding expansion effect

Expansion 50-200 times  
NK(CD3+56+) accounts for 60-90%

Product Name	Model Number	Specification
AMMS®NK Cell Culture Kit	AS-22	AMMS®NK Cell Culture Reagent Kit AMMS®NK Serum-Free Medium × 2



DMF documentation filed

## Lymphocyte Separation Medium



### Product Introduction:

This product is a sterile ready-to-use working solution that utilizes the principle of density gradient centrifugation to separate and purify mononuclear cells (MNCs) from human anticoagulant blood samples. The isolated cells can be used for subsequent culture. This product is suitable for large-scale or small-scale purification operations and is compatible with various human sample types, including peripheral blood, umbilical cord blood, and bone marrow.

### Key Products and Features



#### Compatible with Multiple Samples

Suitable for a variety of human body samples such as peripheral blood, umbilical cord blood, and bone marrow.



#### Superior Usage Effect

Significantly higher in cell recovery and viability compared to imported similar products.

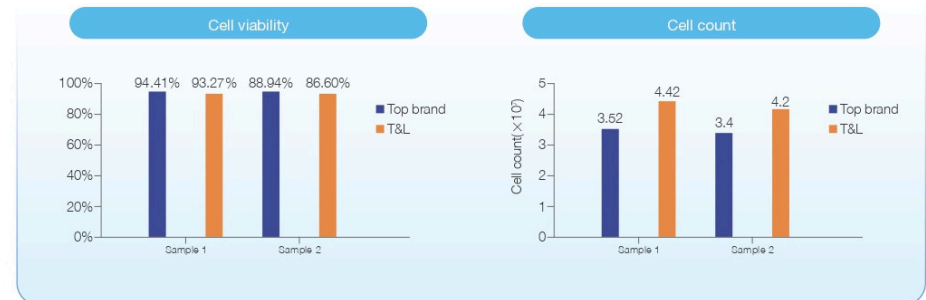


#### Produced in a GMP Environment

All raw materials are injectable grade, and the product is manufactured under GMP conditions, ensuring reliable product safety performance.

Product Name	Catalog Number	Specification
Lymphocyte Separation Medium	AS-37	100mL/bottle

### Experimental Data (Statistical Graph)



## Cryopreservation Medium



### Product Introduction:

This product is a ready-to-use cryopreservation medium for the low-temperature storage of cultured cells, suitable for the cryopreservation of various types of immune cells, such as T cells and NK cells, with NK cells showing good growth after cryopreservation.

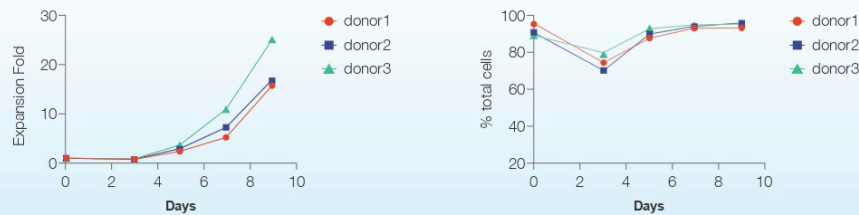
### Key Products and Features

No need to add additional DMSO	Chemically defined, free from xenogeneic components	Sterile, mycoplasma-free, and low endotoxin
High-quality raw materials	Suitable for both serum-containing and serum-free cultured cells	Effective for the cryopreservation of human PBMCs, T cells, NK cells, and other immune cells

Product Name	Catalog Number	Specification
Cell Cryopreservation Medium	AS-36	100mL/bottle

## Experimental Data (Statistical Graph)

Expansion multiple and viability of NK cells after cryopreservation



## Why Choose T&L Biotechnology?

### Innovative Solutions

Our products are developed using cutting-edge technology to meet the evolving needs of the biotechnology and pharmaceutical industries.

### High-Quality Standards

All our media are produced under GMP conditions, ensuring the highest quality and safety for your research and clinical applications.

### Customizable Services

We offer tailored solutions to meet specific research needs, including custom media formulation and recombinant protein production.

## What we can do

Offering affordable prices with shorter supply times for all of its products and services

- Capable of Investigational New Drug (IND) applications in clinical trials
- 24-hour technical support, staffed by experts in cellular research, is always ready to assist and engage in detailed discussions to meet specific client requirements
- Assisting over 40 biotech and biopharmaceutical partners globally with shorter lead times through some localized warehouse services
- 50% R&D and production team of its all staff members, with GMP B+A production
- New cell commercialization, with products holding DMF filings, while its production systems meet ISO certification standards



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