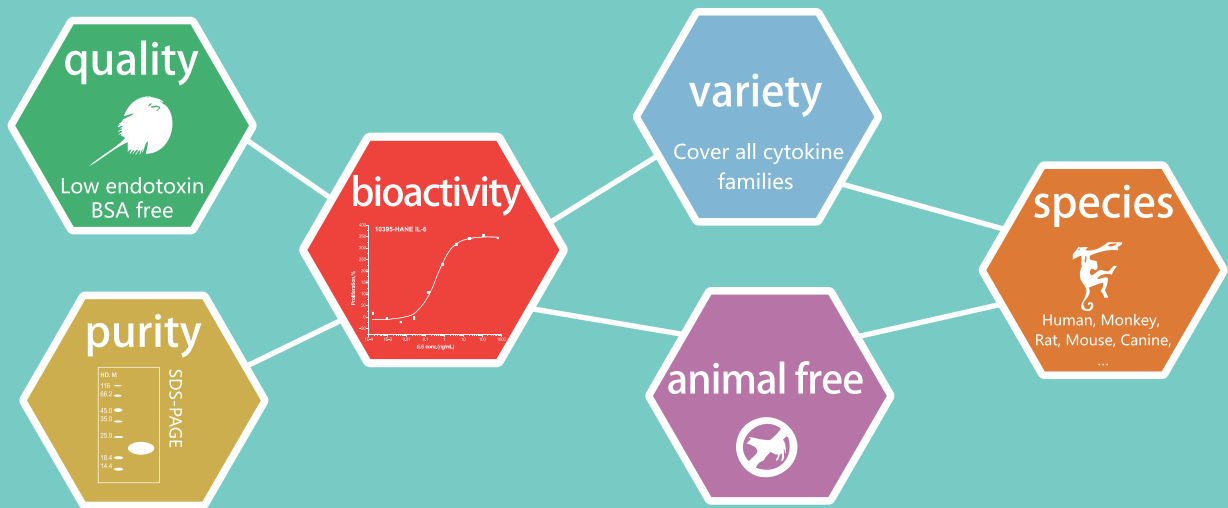




# Cytokines & Growth Factors

—Sino Biological Inc.



**Comprehensive**  
600+ cytokines  
600+ cytokines receptors

**Speedy**  
Deliver in 24h

**Premium**  
Optimal quality  
High purity  
Strictest QC control

**Economic**  
Save 30%-70%

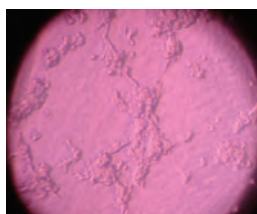
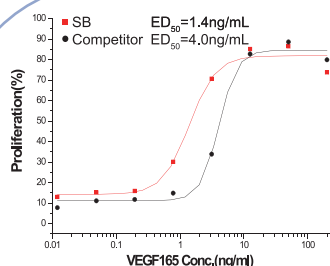
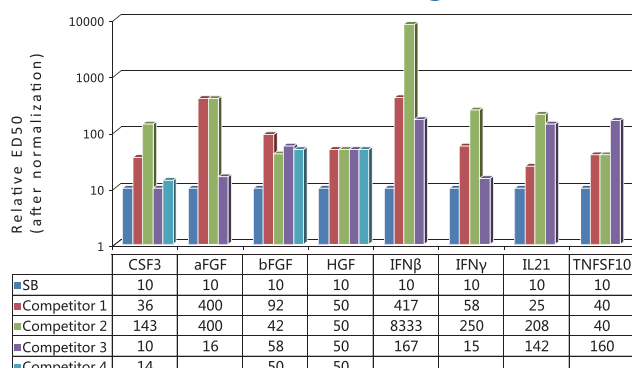


Cutting-Edge Technology Leads to Unmatched Capability  
Make High-Quality Affordable

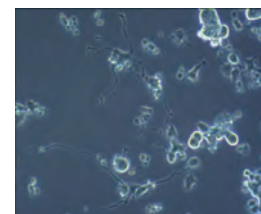
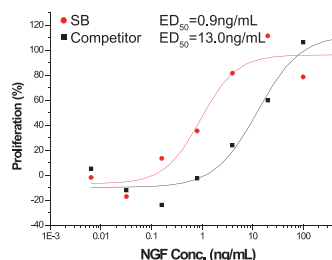
## High Quality Assurance

- ISO9001 certified
- Cell based bioactivity assays
- Full set of quality control system
- Low endotoxin level
- Animal free
- Carrier free, Storage in PBS
- GMP grade proteins available

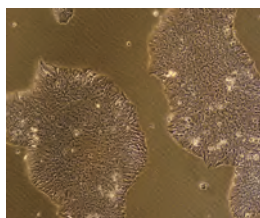
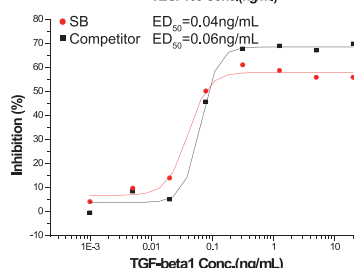
### Better quality comparing with 5 other leading brands



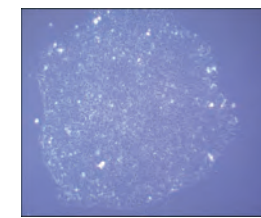
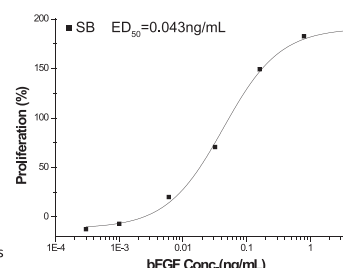
VEGF165 induced the angiogenesis of HUVE cells in vitro



NGF induced the axon Growth of PC12 cells in vitro



TGF- $\beta$  & bFGF used in the Culture of hESCs

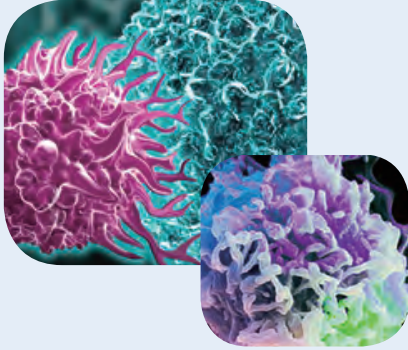


bFGF used in the Culture of hESCs

## Products' reference

Organization	Title	Journal
The University of Manchester	Interleukin-1 $\beta$ processing is dependent upon a calcium-mediated interaction with calmodulin	J.Biol.Chem. -2015
Jinan University	A novel recombinant slow-release TNF $\alpha$ -derived peptide effectively inhibits tumor growth and angiogenesis	Sci Rep -2015
Texas A&M University	Obesity promotes colonic stem cell expansion during cancer initiation	Cancer Lett. -2015
Universität Hamburg	Sharpin Controls Osteogenic Differentiation of Mesenchymal Bone Marrow Cells	J.Immunol. -2015
Chang Gung University	Modulation of Bone-Specific Tissue Regeneration by Incorporating Bone Morphogenetic Protein & Controlling the Shell Thickness of Silk Fibroin/Chitosan/Nanohydroxyapatite Core-Shell Nanofibrous Membranes	ACS Appl Mater Interfaces -2015
University of Southern Denmark	Conformational Analysis of Large and Highly Disulfide-Stabilized Proteins by Integrating Online Electrochemical Reduction into an Optimized H/D Exchange Mass Spectrometry Workflow	Anal.Chem. -2015
Baylor College of Medicine	Uterine RAC1 via Pak1-ERM signaling directs normal luminal epithelial integrity conducive to on-time embryo implantation in mice	Cell Death Differ. -2015
The University of Melbourne	Intestinal-specific activatable Myb initiates colon tumorigenesis in mice	Oncogene -2015
National Institute of Biological Sciences, Beijing	Ainsliadimer A selectively inhibits IKK $\alpha$ / $\beta$ by covalently binding a conserved cysteine	Nat Commun -2015
XI'AN JIAOTONG UNIVERSITY	Transforming growth factor-beta in the red nucleus plays antinociceptive effect under physiological and pathological pain conditions	Neuroscience -2015
Chinese Academy of Sciences	Mycobacterium tuberculosis suppresses innate immunity by coopting the host ubiquitin system	Nat. Immunol. -2015
Swiss Federal Institute of Technology Zurich	Glycosylation profiles determine extravasation and disease	Proc. Natl. Acad. Sci. U.S.A. -2015
Harvard Medical School	Approaching near real-time biosensing: microfluidic microsphere based biosensor for real-time analyte detection	Biosens Bioelectron -2015

## GMP-grade cytokines



Sino Biological Inc.'s GMP-grade cytokines are manufactured, tested and released in compliance with GMP (Good Manufacturing Practice) regulations and ISO 9001 quality system standard. Controlled production procedures and comprehensive quality control tests ensure consistent product quality.

- ☆ Qualified equipment and employees
- ☆ Rigorously defined and controlled industrial processing steps
- ☆ Traceability of products and qualification of raw materials
- ☆ Stringent quality control, comprehensive analytical methods
- ☆ Without use of animal-derived materials
- ☆ Carrier Free: dissolved in PBS, without BSA
- ☆ All products in stock. Lyophilized, Shipped at RT



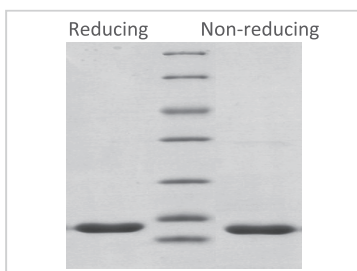
### GMP-grade products

Cat #	Product Name	Endotoxin
GMP-11725-HNAS	Recombinant Human IFN-Gamma/ $\gamma$ -IFN	<0.01EU/ $\mu$ g
GMP-11848-HNAE	Recombinant Human Interleukin-2	<0.2EU/ $\mu$ g
GMP-11846-HNAE	Recombinant Human Interleukin-4	<0.01EU/ $\mu$ g
GMP-10395-HNAE	Recombinant Human Interleukin-6	<0.01EU/ $\mu$ g
GMP-10584-HNAE	Recombinant Human Interleukin-21	<0.01EU/ $\mu$ g
GMP-10602-HNAE	Recombinant Human TNF- $\alpha$	<0.01EU/ $\mu$ g
GMP-10605-HNAE	Recombinant Human EGF	<0.001EU/ $\mu$ g
GMP-10977-H001	Human CD3 Neutralizing Antibody	<0.05EU/mg
GMP-11524-H001	Human CD28 Neutralizing Antibody	<0.21EU/mg
GMP-10377-H944	Human PD1 Neutralizing Antibody	<0.11EU/mg
GMP-10084-H524	Human B7H1 Neutralizing Antibody	<0.02EU/mg

## Stringent manufacturing processes and quality control

- ◎ SEC-HPLC: ≥95%
- ◎ SDS-PAGE: ≥95%
- ◎ Endotoxin: <0.01EU/μg
- ◎ Animal-Free
- ◎ Biologically active
- ◎ Water for Injection
- ◎ Membrane filtration
- ◎ Microbiological testing
- ◎ Toxicology testing

### Human TNF-alpha Protein, GMP-10602-HNAE



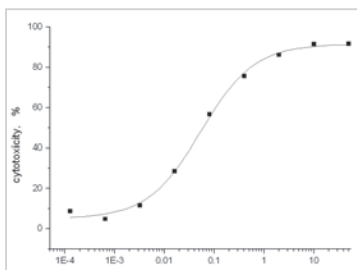
SDS-PAGE >97%



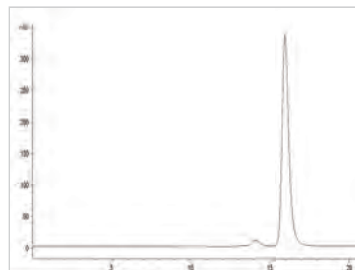
Acute Toxicity Test



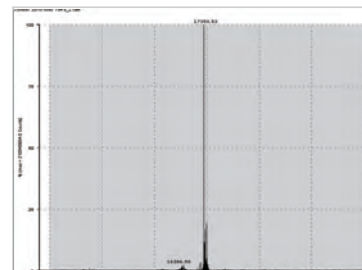
Sterility Test



Cytotoxicity Assay with L929



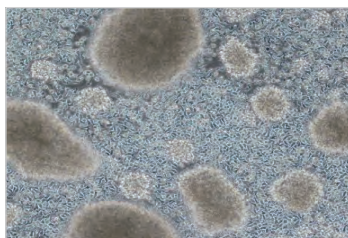
SEC-HPLC >96%



Mass Spectra-17350.53Da

## T cell culture with GMP-grade cytokines & antibody

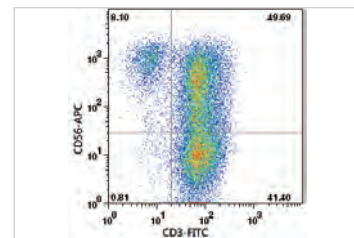
### Human T Cells Cultured with Recombinant Human IL-2, INF-r, Anti-CD3 antibody



Cell morphology on the 14<sup>th</sup> day



Effects on the proliferation of T cells



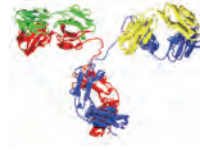
The ratio of CD3 + CD56+ phenotype of T cells

# About Sino Biological Inc.

## 23,000 Products Online



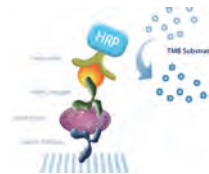
**Protein**  
(5,000)



**Antibody**  
(4,000)



**Gene**  
(11,000)



**ELISA Kit**  
(350)

## Rapid & High-throughput Production Capability

- 1000 new proteins per year
- 5000 new genes per year
- 1000 new antibodies per year
- 40,000 L cell culture per year

## Affordable Prices



## Cytokines are also available in premium and research grade

Cat#	Species	Molecule	Purity	Bio-activity ( ED <sub>50</sub> )
10013-HNAE	Human	aFGF/FGF1	95%	50-200 pg/mL
10014-HNAE	Human	bFGF/FGF2	95%	20-100 pg/mL
11528-HNAE	Human	FGF6	95%	0.1-0.6 ng/mL
16124-HNAE	Human	FGF8a	95%	0.8-3.3 µg/mL
16277-HNAE	Human	FGF8b	95%	0.4-1.6 µg/mL
10573-HNAE	Human	FGF10	98%	0.31-2 µg/mL
10128-HNCH	Human	IL1α/IL1F1	95%	0.2-1 ng/mL
10139-HNAE	Human	IL1β/IL1F2	95%	0.4-2 ng/mL
11848-HNAE	Human	IL2	95%	1-5 ng/mL
11858-HNAE	Human	IL3	95%	0.04-0.2 ng/mL
11846-HNAE	Human	IL4	95%	0.05-0.2 ng/mL
10395-HNAE	Human	IL6	95%	0.75-3 ng/mL
11821-HNAE	Human	IL7	90%	1.2-4.7 ng/mL
10947-HNAE	Human	IL10	95%	0.2-1.2 ng/mL
10369-HNAC	Human	IL13	92%	0.5-3 ng/mL
10360-HNCE	Human	IL15	95%	0.8-4 ng/mL
12047-HNAE	Human	IL17A	98%	15-75 ng/mL
11855-HNAE	Human	IL17F	95%	0.1-0.6 µg/mL
10584-HNAE	Human	IL21	95%	0.4-2 ng/mL
10008-HNAB	Human	VEGF121	95%	0.5-2 ng/mL
11066-HNAH	Human	VEGF165	95%	4-16 ng/mL
10542-H08H	Human	VEGFC	97%	0.1-0.5 µg/mL
10451-H08B	Human	SCF/KITLG	92%	2-8 ng/mL
10598-HNAE	Human	IGF-1	95%	0.5-2 ng/mL
10605-HNAE	Human	EGF	95%	20-100 pg/mL
11050-HNAC	Human	NGF	95%	0.2-2 ng/mL
10463-HNAS	Human	HGF	93%	2-10 ng/mL
11252-HNAE	Human	TGFA	90%	0.1-0.5 ng/mL
10804-HNAC	Human	TGF-β1	95%	0.04-0.2 ng/mL
10409-HNAE	Human	TNFSF10/TRAIL	97%	0.2-0.8 ng/mL
11682-HNCH	Human	RANKL/TNFSF11	95%	1.5-7.5 ng/mL
10056-HNCH	Human	BAFF/TNFSF13B	96%	0.4-2 ng/mL
11725-HNAS	Human	IFNG/γ-IFN	92%	0.1-0.5 ng/mL
10267-H08H	Human	Noggin/NOG	95%	0.05-0.3 µg/mL
10372-H08H1	Human	SHH	95%	2-10 µg/mL
10602-HNAE	Human	TNF-alpha/TNFA	95%	20-100 pg/mL
10270-HNAE	Human	TNF-beta/TNFSF1	97%	0.1-0.5 ng/mL
10426-HNAE	Human	BMP2	95%	0.5-2 µg/mL
10429-HNAH	Human	Activin A/INHBA	95%	4-16 ng/mL
10015-HNAY	Human	GM-CSF/CSF2	95%	0.1-0.6 ng/MI
14890-HNAH	Human	LIF	95%	0.2-0.8 ng/mL
50756-MNAH	Mouse	LIF	95%	0.1-0.5 ng/mL