

SB Sino Biological



Cytokine Product Handbook

High Quality Cytokines

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Part 1

High Quality Cytokines

High Quality Cytokines

Sino Biological offers a comprehensive array of recombinant cytokines tailored for cell culture to advance research in tumor immunotherapy, stem cell therapy, drug screening, and regenerative medicine. With stringent quality control and extensive validation, we guarantee that our cytokines have high purity, validated biological activity, high stability, and low endotoxin levels.

Sino Biological is committed to developing high-quality reagents for drug development and clinical research. In addition to RUO-grade cytokines, we have developed a series of GMP-grade cytokines that offer greater stability and higher quality. These products are produced under a GMP quality management system to comprehensively support the process of cell therapy and drug development.



The CiteAb Award 'Growth Factor Supplier to Watch in 2024'

Product Advantages

- ✔ 250+ molecules, 800+ cytokine products (20+ GMP-grade)
- ✔ Comprehensive coverage including interleukins, growth factors, TNFs, chemokines, interferons, and more
- ✔ High purity, lot-to-lot consistency, and biological activity
- ✔ Human, mouse, monkey, and other species to cover diverse animal models
- ✔ Tag free or small tags
- ✔ Carrier-free buffer formulation
- ✔ low endotoxin levels
- ✔ GMP- and RUO-grade available
- ✔ ISO9001/ISO13485/GMP quality system certifications

Certifications



ISO 9001:2015



ISO 13485:2016



GMP



FDA DMF Filed

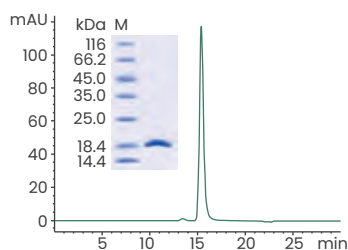
Animal-free GMP-grade Cytokines

- Animal-free Materials
- Manufactured in GMP Facilities
- Reliable Supply Chain

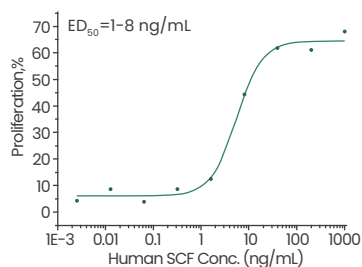
NEW PRODUCTS
FLT3LG
SCF
IL-21
High Quality Cytokines

Product Validation Data

Human SCF Protein (Cat#: GMP-10451-HNAE1-L-AF)

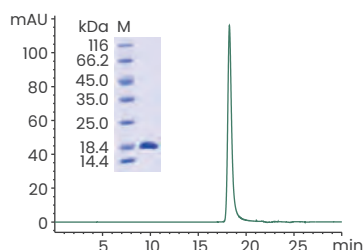


Purity \geq 95% as determined by SDS-PAGE and SEC-HPLC.

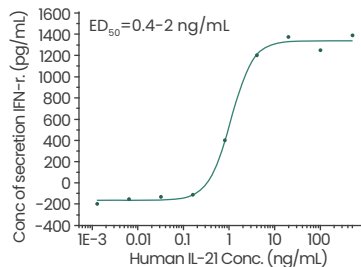


Measured in a cell proliferation assay using TF-1 human erythroleukemic cells.

Human IL-21 Protein (Cat#: GMP-10584-HNAE1-L-AF)

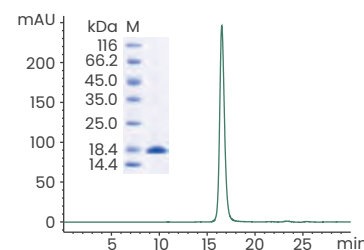


Purity \geq 95% as determined by SDS-PAGE and SEC-HPLC.

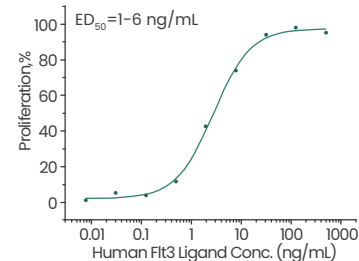


Measured by its ability to induce Interferon gamma secretion by human natural killer lymphoma NK-92 cells.

Human Flt3 Ligand/FLT3LG (Cat#: GMP-10315-HNAE1-L-AF)



Purity \geq 95% as determined by SDS-PAGE and SEC-HPLC.



Measured in a cell proliferation assay using BaF3 mouse proB cells transfected with mouse Flt3.

Key Features of Our Animal-Free, Highly Active Cytokines

Cytokine	Cat#	Species	SEC-HPLC Purity	Endotoxin	Host	Tag
SCF	GMP-10451-HNAE1-L-AF	Human	\geq 95%	< 10 EU/mg	<i>E. coli</i>	Native
IL-21	GMP-10584-HNAE1-L-AF	Human	\geq 95%	< 10 EU/mg	<i>E. coli</i>	Native
Flt3 Ligand	GMP-10315-HNAE1-L-AF	Human	\geq 95%	< 10 EU/mg	<i>E. coli</i>	Native

GMP-grade available Animal-free HPLC-verified



Part 2

Cytokines

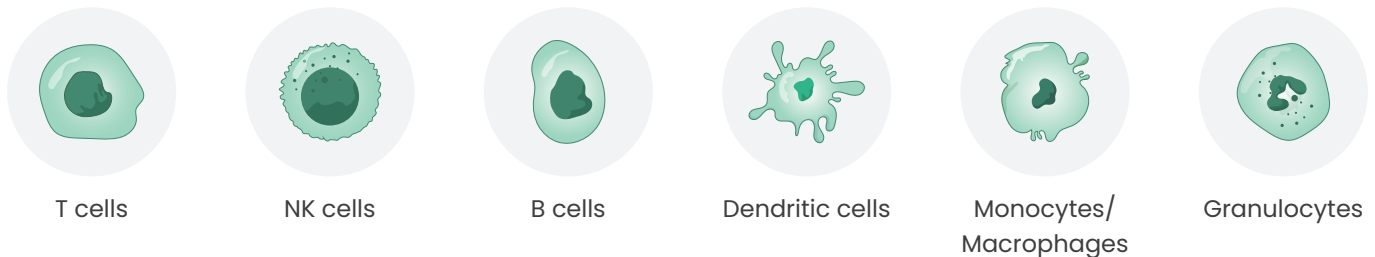
Applications

Immune Cell Culture

Adoptive cell transfer therapy has gained widespread attention in tumor immunotherapy, encompassing CAR-M, CAR-NK, CAR-T, TCR-T, NK, LAK, and TIL. Cytokines are crucial for regulating immune cell proliferation, differentiation, and signal transduction, serving as essential reagents in both immune cell culture and drug development for cell and gene therapies.

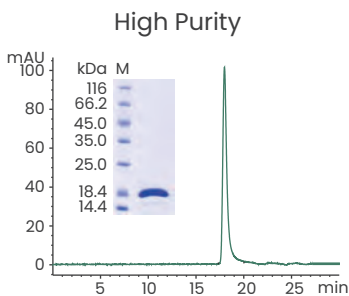
Sino Biological offers a series of high-quality cytokines and GMP-grade cytokines such as IL-2, IL-7, IL-15, and IL-21, fully supporting cell therapy manufacturing.

Covering Various Immune Cells

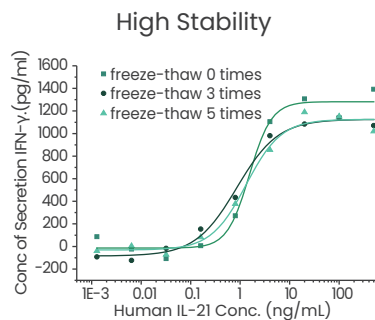


Product Validation Data

GMP-grade Human IL-21 Protein (Cat#: GMP-10584-HNAE)

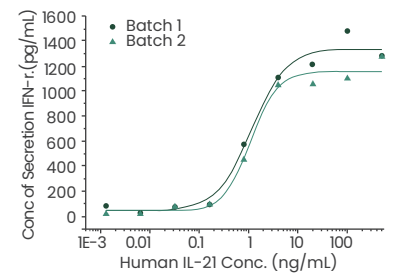


≥ 95% as determined by SEC-HPLC & SDS-PAGE



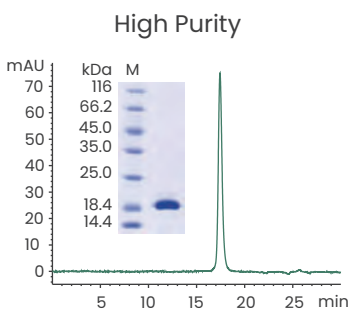
Induced IFN- γ secretion by human natural killer lymphoma NK-92 cells.

High Batch-to-batch Consistency

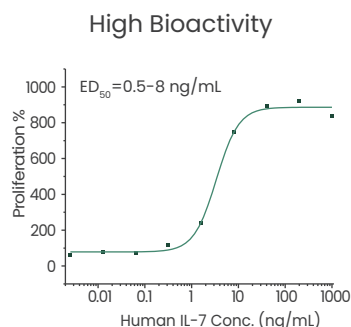


Induced IFN- γ secretion by human natural killer lymphoma NK-92 cells.

GMP-grade Human IL-7 Protein (Cat#: GMP-11821-HNAE)

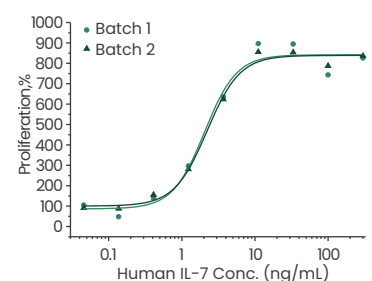


≥ 95% as determined by SEC-HPLC & SDS-PAGE



Cell proliferation assay using anti-CD3 antibody activated human peripheral blood mononuclear cell (PBMC).

High Batch-to-batch Consistency

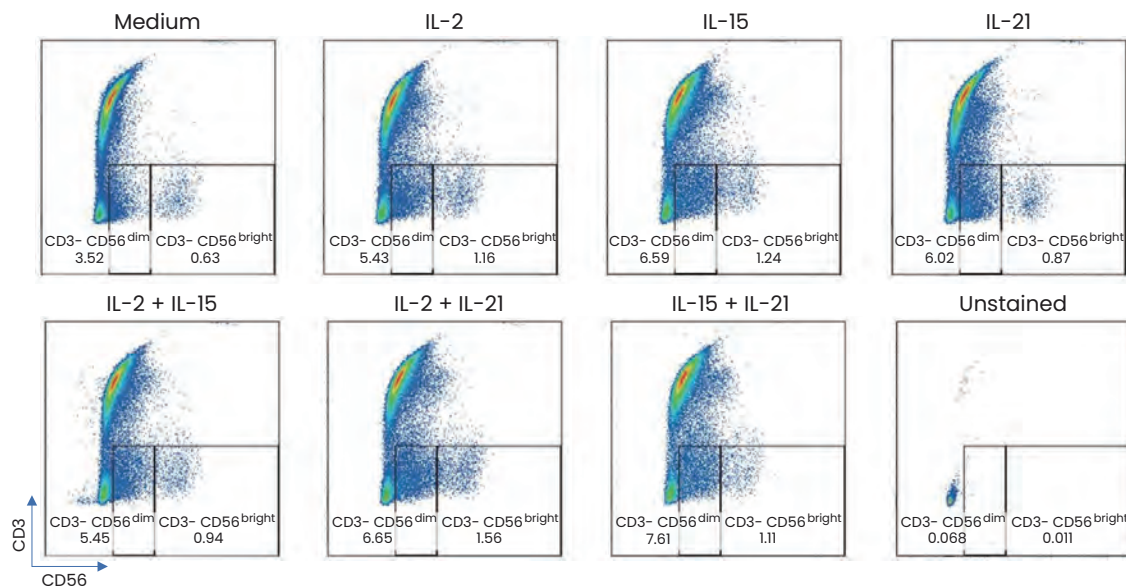


Cell proliferation assay using anti-CD3 antibody activated human peripheral blood mononuclear cell (PBMC).

Case Study

IL-2, IL-15, and IL-21 in Combination to Induce NK Cell Differentiation

Human IL-2, IL-15, and IL-21 (Cat#: 11848-HNAHI-E; Cat#: 10360-HNCE; Cat#: 10584-HNAE)



Natural killer (NK) cells expansion was detected by FACS analysis.

Representative graphs of CD3⁻CD56⁺ (CD56^{bright} and CD56^{dim}) expressing cells demonstrated 3-day treatment of γ c cytokine (20 ng/mL IL-2, 20 ng/mL IL-15, and 25 ng/mL IL-21) induced NK cells expansion.

DOI: 10.1155/2023/8924603

Highly Active Cytokines for Immune Cell Culture

Cytokine	Cat#	Species	SEC-HPLC Purity	Endotoxin	Host
GM-CSF/CSF2	GMP-10015-HNAH	Human	≥ 95%	< 5 EU/mg	HEK293 Cells
IFN gamma	GMP-11725-HNAE	Human	≥ 95%	< 5 EU/mg	<i>E. coli</i>
IL-1 beta	GMP-10139-HNAE	Human	≥ 95%	< 5 EU/mg	<i>E. coli</i>
IL-2	11848-HNAE2	Human	≥ 95%	< 5 EU/mg	<i>E. coli</i>
	GMP-11848-HNAE	Human	≥ 95%	< 5 EU/mg	<i>E. coli</i>
IL-4	GMP-11846-HNAE	Human	≥ 95%	< 5 EU/mg	<i>E. coli</i>
IL-7	11821-HNAE	Human	≥ 95%	< 10 EU/mg	<i>E. coli</i>
	GMP-11821-HNAE	Human	≥ 95%	< 10 EU/mg	<i>E. coli</i>
IL-12	GMP-CT011-H08H	Human	≥ 95%	< 5 EU/mg	HEK293 Cells
IL-15	10360-HNCE	Human	≥ 95% (SDS-PAGE)	< 20 EU/mg	<i>E. coli</i>
	GMP-10360-HNCE	Human	≥ 95%	< 5 EU/mg	<i>E. coli</i>
IL-21	10584-HNAE	Human	≥ 95%	< 5 EU/mg	<i>E. coli</i>
	GMP-10584-HNAE	Human	≥ 95%	< 5 EU/mg	<i>E. coli</i>
	GMP-10584-HNAE1-L-AF	Human	≥ 95%	< 10 EU/mg	<i>E. coli</i>
TGF beta 1	10804-HNAC	Human, Rhesus, Cynomolgus, Canine	> 95% (SDS-PAGE)	< 1.0 EU/μg	CHO Stable Cells
TNF-alpha	GMP-10602-HNAE	Human	≥ 95%	< 5 EU/mg	<i>E. coli</i>

GMP-grade available Animal-free

For more cytokines, please visit <https://cn.sinobiological.com/category/cytokine/immune-cell-culture>

Stem Cell Culture

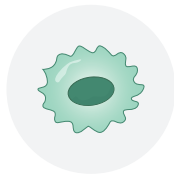
Stem cells are multipotent cells capable of self-renewal, self-replication, and differentiation into multiple cell lines. These include mesenchymal stem cells (MSCs), hematopoietic stem cells (HSCs), neural stem cells (NSCs), embryonic stem cells (ESCs), and induced pluripotent stem cells (iPSCs).

Cytokines play a pivotal role in the renewal and differentiation of stem cells. Sino Biological provides a series of high quality and GMP-grade recombinant cytokines with validated bioactivity, batch-to-batch consistency, and high purity. These products fully support the research and development of new stem cell therapies.

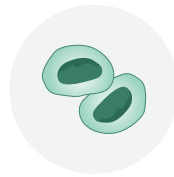
Covering Different Stem Cells



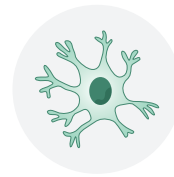
Mesenchymal stem cells (MSCs)



ESCs /iPSCs



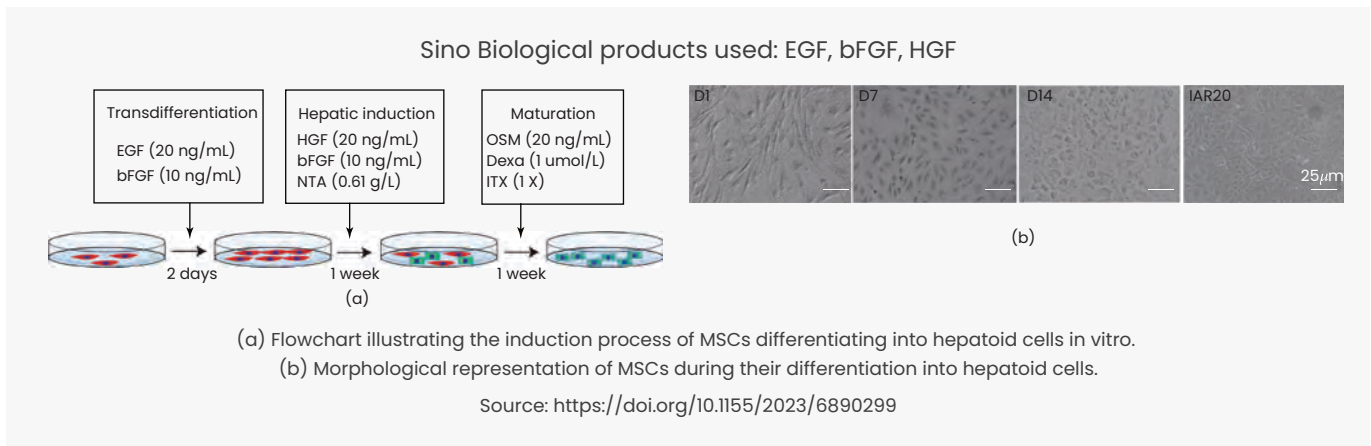
Hematopoietic stem cells (HSCs)



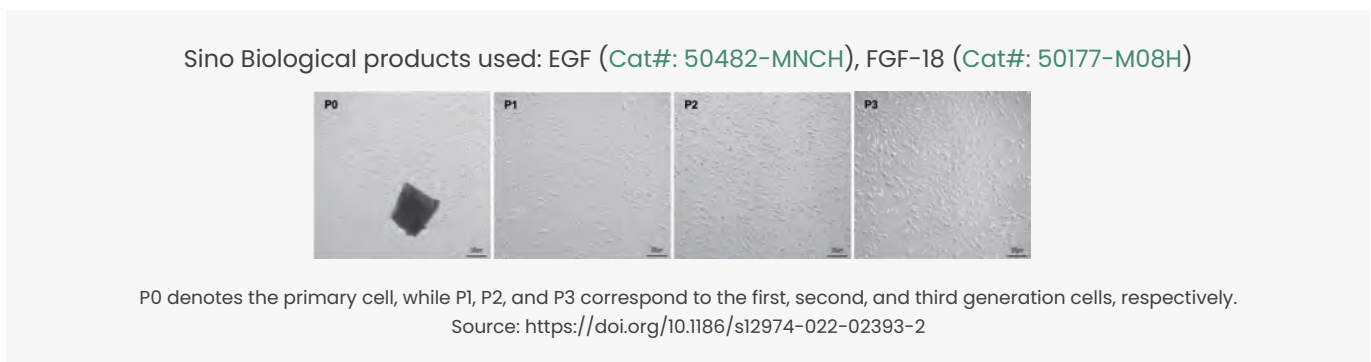
Neural stem cells (NSCs)

Case Studies

MSCs differentiate into hepatoid cells

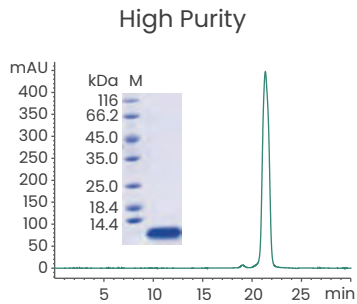


Expansion of bone marrow MSCs

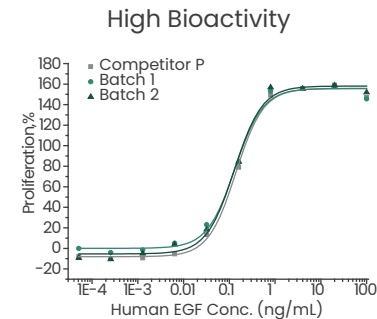


Product Validation Data

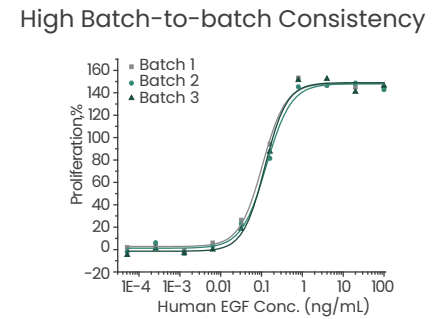
Human EGF Protein (Cat#: 10605-HNAE)



≥ 95% as determined by SDS-PAGE and SEC-HPLC.



Cell proliferation assay using Balb/C 3T3 mouse embryonic fibroblasts.



Cell proliferation assay using Balb/C 3T3 mouse embryonic fibroblasts.

Highly Active Cytokines for Stem Cell Culture

Cytokine	Cat#	Species	SEC-HPLC Purity	Endotoxin	Host
Activin A	GMP-10429-HNAH	Human, Mouse, Rat, Cynomolgus, Rhesus	≥ 95%	< 10 EU/mg	HEK293 Cells
basic FGF/FGF2	GMP-10014-HNAE	Human	≥ 95% (SDS-PAGE)	< 10 EU/mg	<i>E. coli</i>
BMP-2	10426-HNAE1	Human, Mouse, Rat, Rhesus, Canine	≥ 95% (SDS-PAGE)	< 10 EU/mg	<i>E. coli</i>
BMP4	10609-HNAE2	Human	≥ 95% (SDS-PAGE)	< 1.0 EU/μg	<i>E. coli</i>
DLL4	10171-H02H	Human	≥ 85%	< 1.0 EU/μg	HEK293 Cells
EGF	GMP-10605-HNAE	Human	≥ 95%	< 5 EU/mg	<i>E. coli</i>
Flt3 Ligand	10315-HNAE	Human	≥ 95%	< 10 EU/mg	<i>E. coli</i>
	GMP-10315-HNAE1-L-AF	Human	≥ 95%	< 10 EU/mg	<i>E. coli</i>
GM-CSF/CSF2	GMP-10015-HNAH	Human	≥ 95%	< 5 EU/mg	HEK293 Cells
IL-3	GMP-11858-HNAE	Human	≥ 95%	< 5 EU/mg	<i>E. coli</i>
IL-6	GMP-10395-HNAE	Human	≥ 95% (SDS-PAGE)	< 5 EU/mg	<i>E. coli</i>
Noggin/NOG	10267-HNAH	Human	≥ 95%	< 10 EU/mg	HEK293 Cells
PDGF-BB	10572-HNAE	Human	≥ 95%	< 50 EU/mg	<i>E. coli</i>
SCF	10451-HNAE	Human	≥ 95%	< 10 EU/mg	<i>E. coli</i>
	GMP-10451-HNAE1-L-AF	Human	≥ 95%	< 10 EU/mg	<i>E. coli</i>
TGF beta 1	10804-HNAC	Human, Rhesus, Cynomolgus, Canine	> 95% (SDS-PAGE)	< 1.0 EU/μg	CHO Stable Cells
VEGF-A	11066-HNAH	Human, Cynomolgus	≥ 95%	< 10 EU/mg	HEK293 Cells

GMP-grade available Animal-free

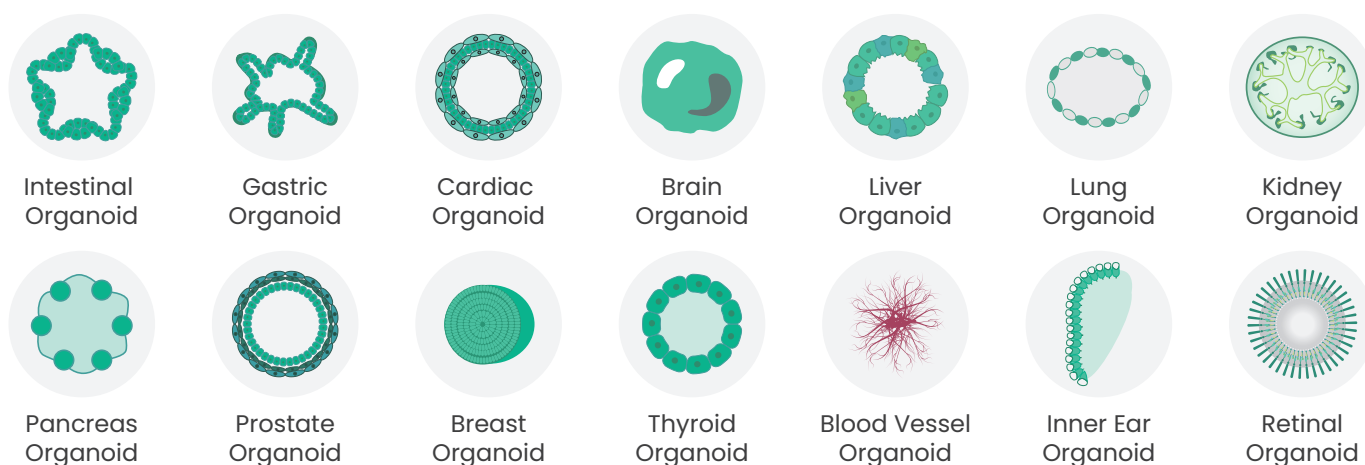
For more cytokines, please visit <https://www.sinobiological.com/category/ads/stem-cell-research-cytokines>

Organoid Culture

Different cytokine combinations are introduced into the organoid media to obtain the desired organoids. Based on the cell source and the intended type of differentiation, different cytokine combinations can modulate signaling pathways involved in organoid formation.

Sino Biological offers a comprehensive panel of growth factors characterized by validated bioactivity, batch-to-batch consistency, and high purity. These factors play a pivotal role in ensuring optimal and consistent organoid growth. Our products have gained widespread recognition in the market for their quality and performance, as validated by numerous organoid platforms used by our clients.

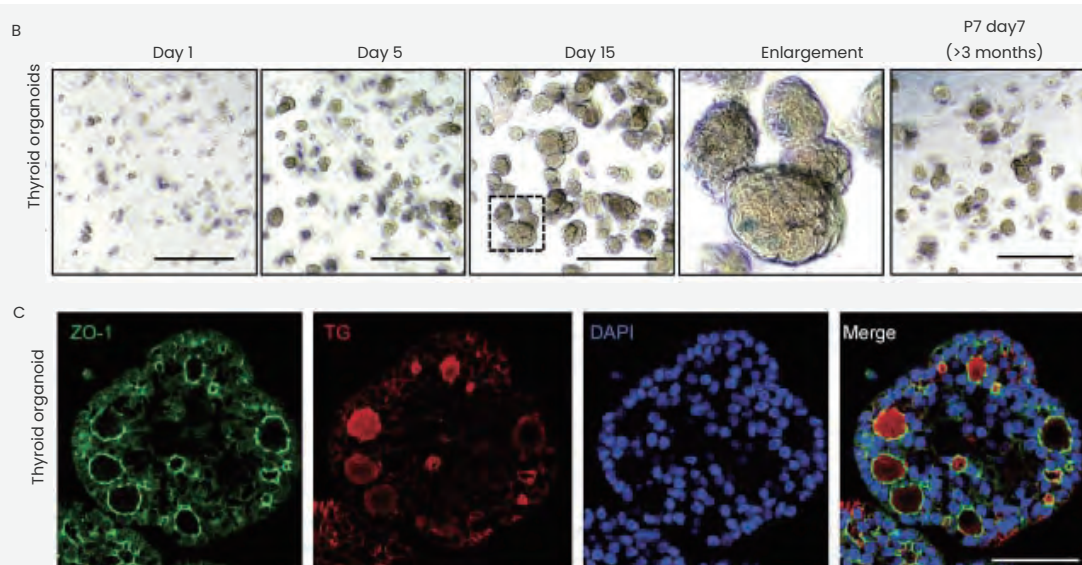
Covering Diverse Organoid Types



Excellent Performance Validated in Organoid Cultures

Human Fetal Thyroid Organoids

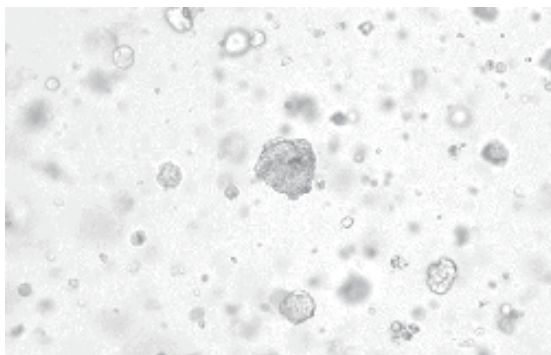
Human EGF (Cat#: 10605-HNAE)



(B) Time point brightfield images of human fetal thyroid organoids. (C) Immunofluorescence double-labeled human fetal thyroid organoid.

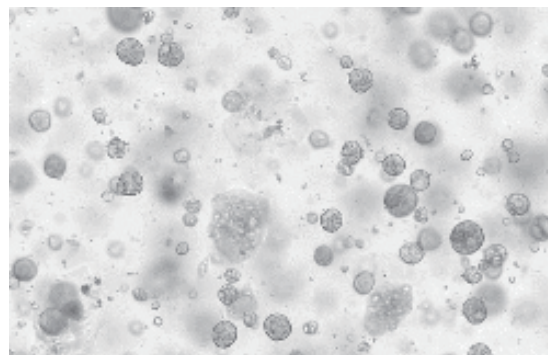
Source: <https://doi.org/10.1002/advs.202105568>

Human Breast Cancer Organoids



Human breast cancer organoids were cultured with FGF7 (Cat#: 10210-H07E), RSPO1 (Cat#: 11083-HNAS), IGF1 (Cat#: 10598-HNAE), EGF (Cat#: 50482-MNCH), NRG1 Beta 1 (Cat#: 11609-H01H), and NOG (Cat#: 50688-M02H).

Human Liver Cancer Organoids



Human liver cancer organoids were cultured with FGF2 (Cat#: 10014-HNAE), HGF (Cat#: 10463-HNAS), FGF7 (Cat#: 10210-H07E), EGF (Cat#: 50482-MNCH), FGF10 (Cat#: 10573-HNAE), TGFBI (Cat#: 10804-HNAC), NOG (Cat#: 50688-M02H), and RSPO1 (Cat#: 11083-HNAS).

Highly Active Cytokines for Organoid Culture

Cytokine	Cat#	Species	SEC-HPLC Purity	Endotoxin	Host
Activin A	10429-HNAH	Human, Mouse, Rat, Cynomolgus, Rhesus	≥ 95%	< 10 EU/mg	HEK293 Cells
basic FGF/FGF2	10014-HNAE	Human	≥ 95% (SDS-PAGE)	< 10 EU/mg	<i>E. coli</i>
BDNF	50240-M08H	Mouse	> 95% (SDS-PAGE)	< 1.0 EU/μg	HEK293 Cells
BMP-2	10426-HNAE1	Human, Mouse, Rat, Rhesus, Canine	≥ 95% (SDS-PAGE)	< 10 EU/mg	<i>E. coli</i>
BMP4	10609-HNAE2	Human	≥ 95% (SDS-PAGE)	< 1.0 EU/μg	<i>E. coli</i>
EGF	10605-HNAE	Human	≥ 95%	< 5 EU/mg	<i>E. coli</i>
FGF-10	10573-HNAE	Human	≥ 95%	< 5 EU/mg	<i>E. coli</i>
FGF-4	16043-HNAE	Human	≥ 95%	< 10 EU/mg	<i>E. coli</i>
HGF	10463-HNAS	Human	≥ 95%	< 10 EU/mg	CHO Stable Cells
IGF1	10598-HNAE	Human	≥ 90%	< 10 EU/mg	<i>E. coli</i>
KGF/FGF-7	10210-H07E	Human	≥ 95%	< 0.1 EU/μg	<i>E. coli</i>
Noggin/NOG	10267-HNAH	Human	≥ 95%	< 10 EU/mg	HEK293 Cells
R-Spondin 1/RSPO1	11083-HNAS	Human	≥95%	< 10 EU/mg	CHO Stable Cells
TGF beta 1	10804-HNAC	Human, Rhesus, Cynomolgus, Canine	> 95% (SDS-PAGE)	< 10 EU/μg	CHO Stable Cells

For more cytokines, please visit
<https://www.sinobiological.com/category/ads/growth-factor-for-organoid-culture>

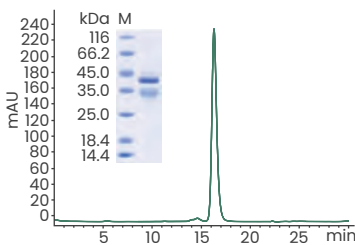
Drug Development

Cytokines regulate a series of intracellular signaling pathways by binding to cell surface receptors, thereby affecting cell growth, differentiation, and survival. Cytokines and their receptor proteins are important targets for the treatment of cancer, neurological diseases, autoimmune diseases, and more.

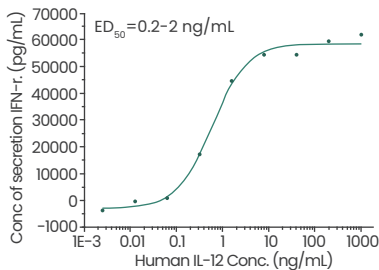
Sino Biological offers a wide collection of cytokines and their receptors, featuring high purity, validated activity, and batch-to-batch consistency. These products can be used in key stages of drug development, including immunization, antibody screening, and affinity determination.

Featured Cytokine Targets

Human IL-12 Protein (Cat#: CT050-HNAH)

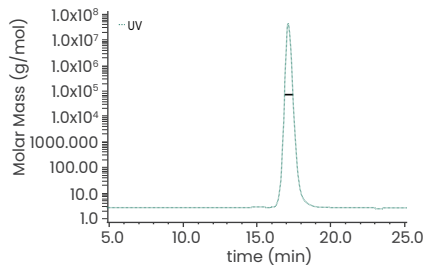


Purity \geq 95% as determined by SDS-PAGE and SEC-HPLC.

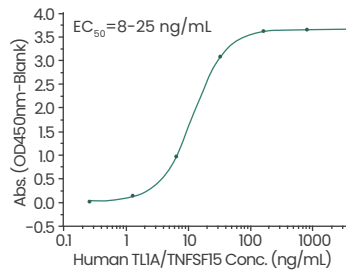


Measured by its ability to induce Interferon gamma secretion by human natural killer lymphoma NK-92 cells.

Human TL1A/TNFSF15 Trimer (Cat#: 17049-H07H2)

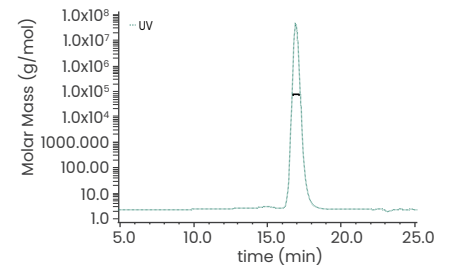


Purity was more than 90% and the molecular weight of this protein is around 74.2 kDa verified by SEC-MALS.

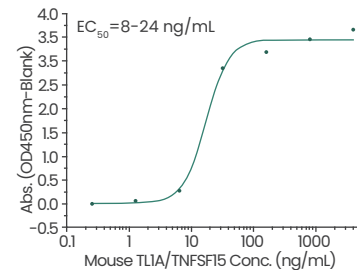


Immobilized Human DCR3/TNFRSF6B Protein (Fc Tag) (Cat#: 10224-H02B) at 2 μ g/mL (100 μ L/well) can bind Human TL1A / TNFSF15 Protein (His Tag).

Mouse TL1A/TNFSF15 Trimer (Cat#: 5A7685-M07H1)

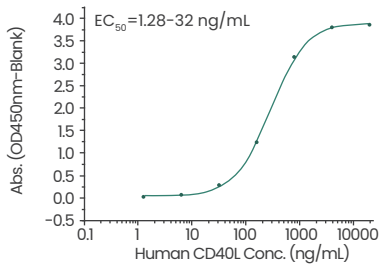


Purity was more than 90% and the molecular weight of this protein is around 73.1 kDa verified by SEC-MALS.

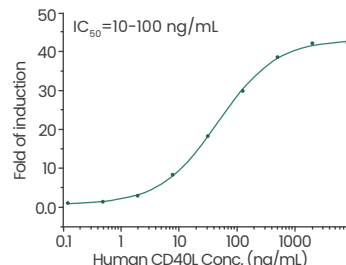


Immobilized Human DCR3/TNFRSF6B Protein (Fc Tag) (Cat#: 10224-H02B) at 2 μ g/mL (100 μ L/well) can bind Mouse TL1A/TNFSF15 Protein (His Tag).

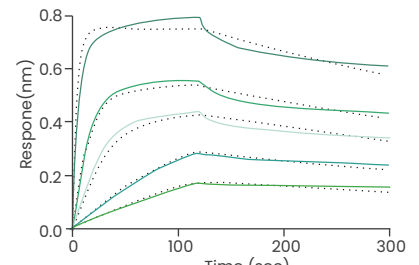
Human CD40 Ligand/TNFSF5 Protein (Cat#: 10239-H01H)



Immobilized human CD40 at 2 μ g/mL (100 μ l/well) can bind human CD40L Fc Chimera with a linear ranger of 1.28-32 ng/mL.



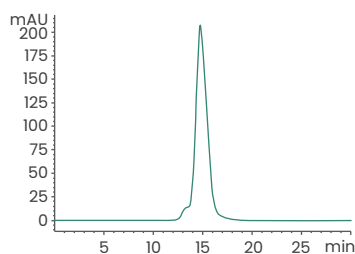
Measured by its ability to induce CD40 pathway activation in a Luciferase receptor Assay System.



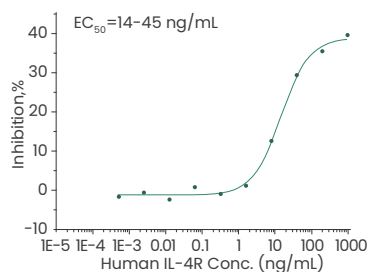
Loaded Human CD40 Protein, His Tag (Cat#: 10774-H08H) on HisIK Biosensor, can bind Human CD40 Ligand Protein, hFc Tag with an affinity constant of 5.88nM as determined in BLI assay (Sartorius Octet RHI6).

Featured Cytokine Receptor Targets

Human IL-4R Protein (Cat#: 10402-H08H)

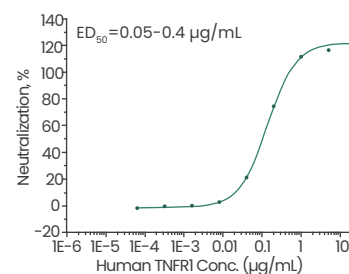


Purity \geq 95% as determined by SEC-HPLC.



Immobilized Human IL4R / CD124 Protein (His Tag) at 2 μ g/mL (100 μ l/well) can bind Human IL4 Protein, Biotinylated (Cat#: 11846-HNAE-B).


Human TNFR1/CD120a (Cat#: 10872-H08H)



Measured by its ability to inhibit TNF α -mediated cytotoxicity in the L929 mouse fibrosarcoma cells in the presence of metabolic inhibitor actinomycin D.

Highly Active Cytokine and Receptor Proteins

Molecule	Cat#	Species	SEC-HPLC Purity	Endotoxin	Host
CD40 Ligand/TNFSF5	10239-H01H	Human	\geq 95%	< 1.0 EU/ μ g	HEK293 Cells
CD70/CD27 Ligand	10780-H07H5	Human	\geq 90%	< 1.0 EU/ μ g	HEK293 Cells
HGF	90286-CNAH	Cynomolgus	> 95% (SDS-PAGE)	< 1.0 EU/ μ g	HEK293 Cells
IL-12	CT050-HNAH	Human	\geq 95%	< 5 EU/mg	HEK293 Cells
IL-13	10369-H01H	Human	> 98% (SDS-PAGE)	< 1.0 EU/ μ g	HEK293 Cells
IL-17RA	10895-H08H	Human	\geq 95%	< 1.0 EU/ μ g	HEK293 Cells
IL-2R beta/CD122	10696-H02H	Human	\geq 90%	< 1.0 EU/ μ g	HEK293 Cells
IL-4R	10402-H08H	Human	\geq 95%	< 1.0 EU/ μ g	HEK293 Cells
IL-6R	10398-H08H	Human	\geq 95%	< 1.0 EU/ μ g	HEK293 Cells
IL-7R alpha/CD127	10975-H08H	Human	\geq 95%	< 1.0 EU/ μ g	HEK293 Cells
LIGHT/TNFSF14	10386-H42H-B	Human	> 90% (SDS-PAGE)	< 1.0 EU/ μ g	HEK293 Cells
LRP-6	11968-H49H-B	Human	\geq 90%	< 1.0 EU/ μ g	HEK293 Cells
M-CSFR/CSFIR	10161-HCCH	Human	> 90% (SDS-PAGE)	< 1.0 EU/ μ g	HEK293 Cells
SOST/Sclerostin	10593-H07H	Human	> 90% (SDS-PAGE)	< 1.0 EU/ μ g	HEK293 Cells
TL1A/TNFSF15	17049-H07H2	Human	\geq 95%	< 1.0 EU/ μ g	HEK293 Cells
	5A7685-M07H1	Mouse	\geq 95%	< 1.0 EU/ μ g	HEK293 Cells
TNF-alpha	90018-CNAE	Cynomolgus, Rhesus	> 90% (SDS-PAGE)		<i>E. coli</i>
VEGFR1/FLT1	10136-H02H	Human	> 95% (SDS-PAGE)	< 1.0 EU/ μ g	HEK293 Cells



Part 3

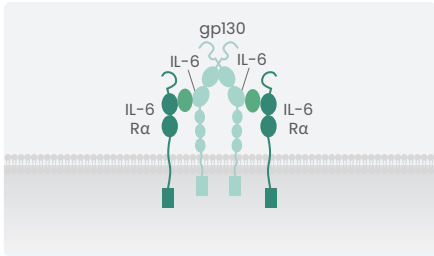
Cytokines

By Family

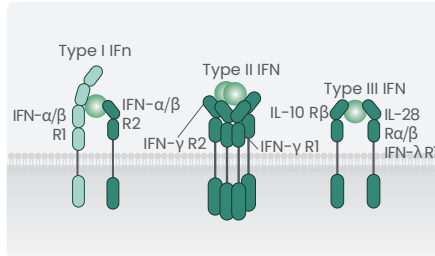
Cytokine Families

Cytokines and their receptors have always been key therapeutic targets for treating cancer, autoimmune, and inflammatory diseases. Sino Biological successfully develops a wide collection of high-quality recombinant interleukins, growth factors, interferons, and chemokines. Our products deliver robust support for your drug development projects, helping to expedite the progress of anti-cytokine therapies.

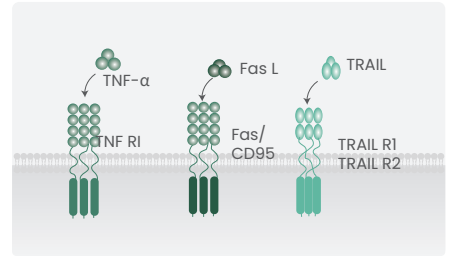
Cytokine Families



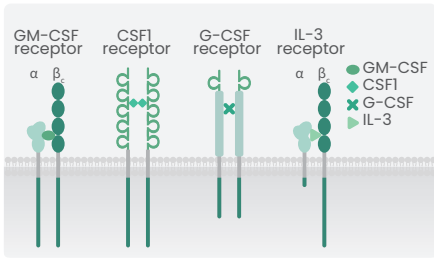
Interleukins



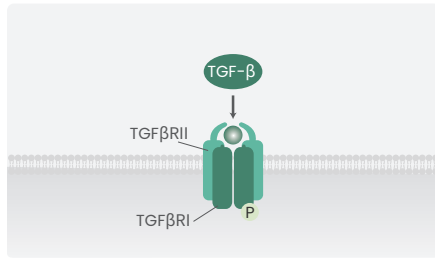
Interferons



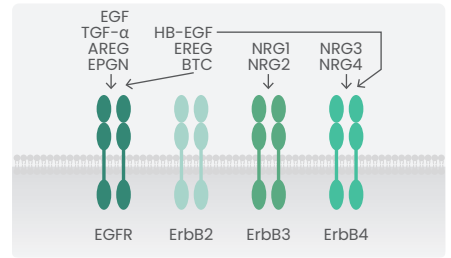
Tumor Necrosis Factors (TNFs)



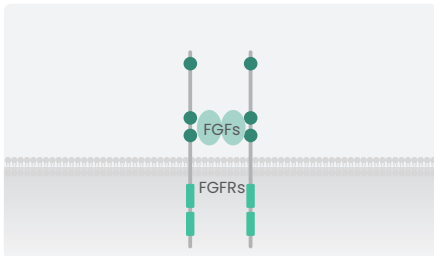
Colony-stimulating Factors (CSFs)



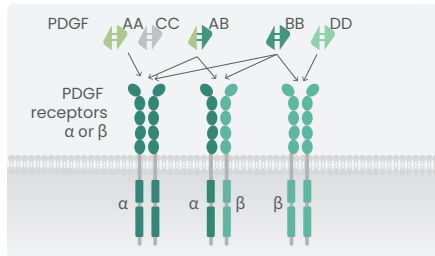
TGF-beta Superfamily



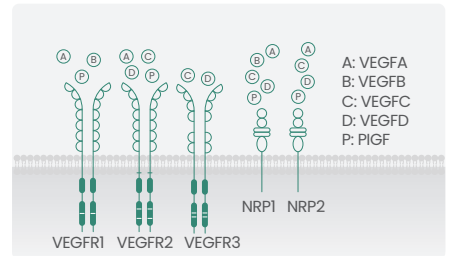
Epidermal Growth Factors (EGFs)



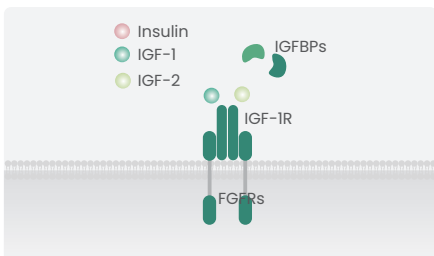
Fibroblast Growth Factors (FGFs)



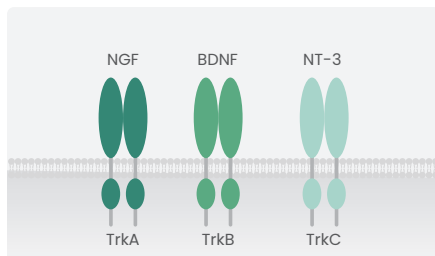
Platelet-derived Growth Factors (PDGFs)



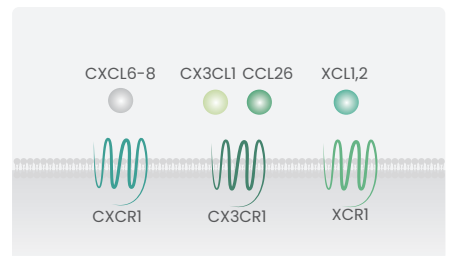
Vascular Endothelial Growth Factors (VEGFs)



Insulin-like Growth Factors (IGFs)



Neurotrophins



Chemokines

For more cytokine families, please visit <https://www.sinobiological.com/research/cytokines>

Interleukins

Featured Interleukin Proteins

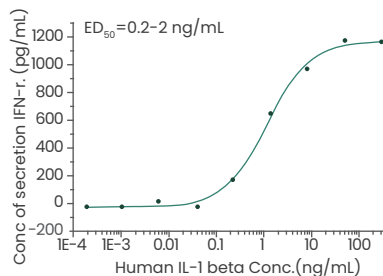
Human IL-1 β Protein (Cat#: 10139-HNAE)

High-purity

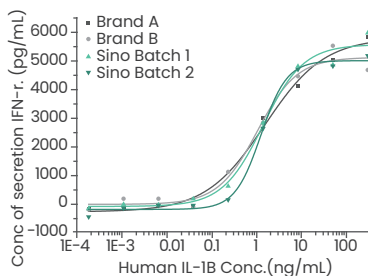
Low-endotoxin

Tag-free

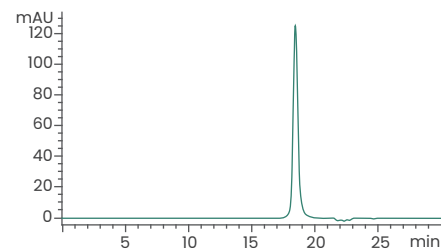
HPLC-verified



Ability to induce Interferon-gamma secretion by human natural killer lymphoma NK-92 cells.

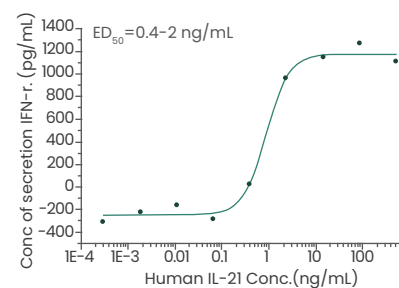


Batch-to-batch Consistency.

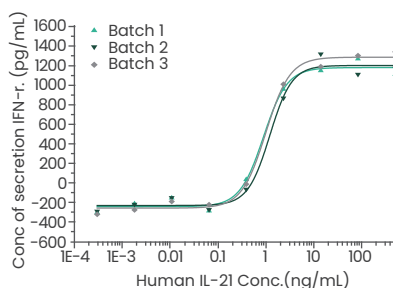


> 95% as determined by SEC-HPLC.

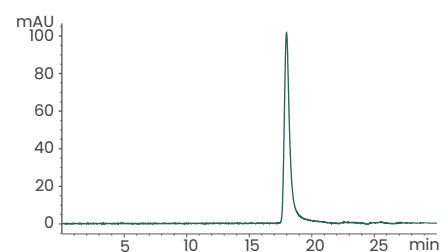
Human IL-21 Protein (Cat#: 10584-HNAE)



Ability to induce Interferon-gamma secretion by human natural killer lymphoma NK-92 cells.



Batch-to-batch Consistency.



> 95% as determined by SEC-HPLC.

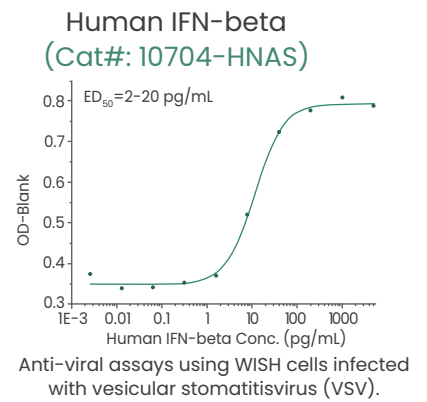
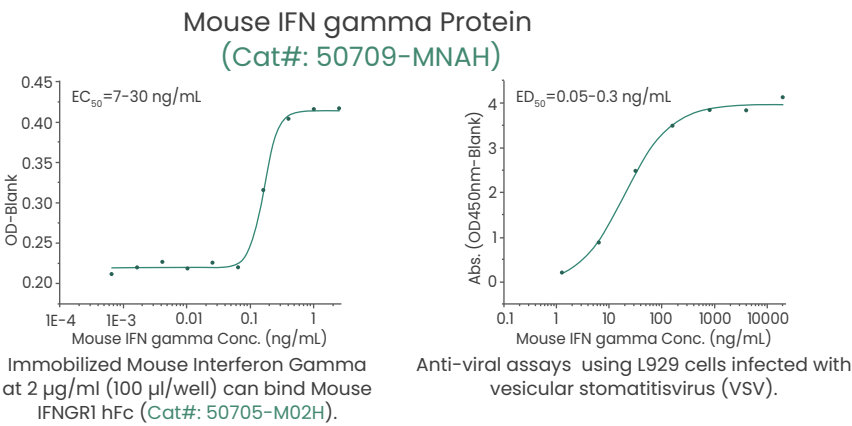
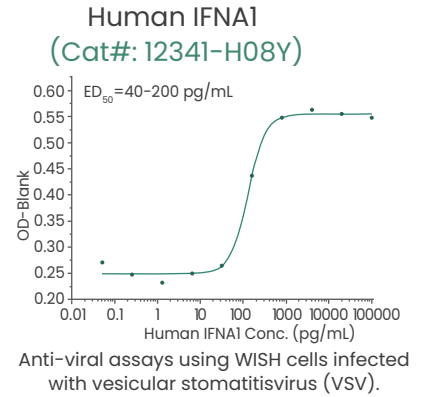
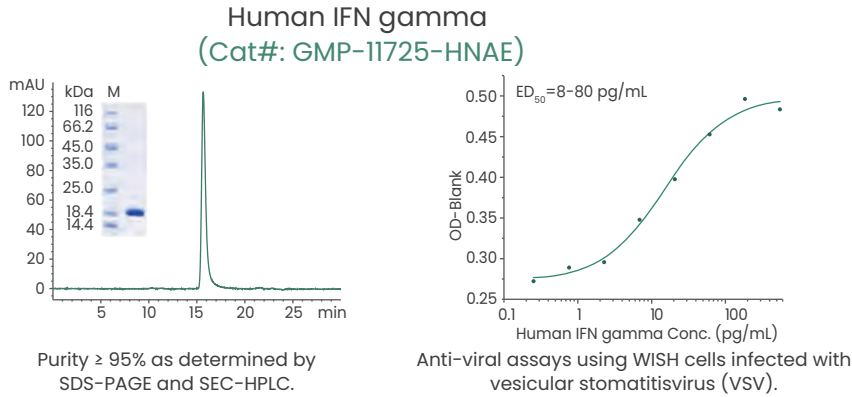
Additional Highly Active Interleukins

Cytokine	Cat#	Species	SEC-HPLC Purity	Endotoxin	Host
IL-1 beta	GMP-10139-HNAE ★	Human	≥ 95%	< 5 EU/mg	<i>E. coli</i>
IL-2	GMP-11848-HNAE ★	Human	≥ 95%	< 5 EU/mg	<i>E. coli</i>
IL-3	GMP-11858-HNAE ★	Human	≥ 95%	< 5 EU/mg	<i>E. coli</i>
IL-4	GMP-11846-HNAE ★	Human	≥ 95%	< 5 EU/mg	<i>E. coli</i>
IL-5	15673-HNCE	Human	> 95% (SDS-PAGE)		<i>E. coli</i>
IL-6	GMP-10395-HNAE ★	Human	≥ 95% (SDS-PAGE)	< 5 EU/mg	<i>E. coli</i>
IL-7	GMP-11821-HNAE ★	Human	≥ 95%	< 0.01 EU/μg	<i>E. coli</i>
IL-10	10947-HNAE	Human	≥ 90%	< 20 EU/mg	<i>E. coli</i>
IL-12	GMP-CT011-H08H ★	Human	≥ 95%	< 5 EU/mg	HEK293 Cells
IL-15	GMP-10360-HNCE ★	Human	≥ 95%	< 5 EU/mg	<i>E. coli</i>
IL-17A	12047-HNAE	Human	≥ 95% (SDS-PAGE)	< 1.0 EU/μg	<i>E. coli</i>
IL-18	10119-HNCE	Human	> 95%	< 10 EU/mg	<i>E. coli</i>
IL-21	GMP-10584-HNAE ★	Human	≥ 95%	< 5 EU/mg	<i>E. coli</i>
LIF	14890-HNAH	Human	≥ 95%	< 10 EU/mg	HEK293 Cells
Oncostatin M/OSM	GMP-10452-HNAH ★	Human	≥ 95%	< 5 EU/mg	HEK293 Cells

★ GMP-grade available

Interferons

Featured Interferon Proteins



Cytokine Families

Additional Highly Active Interferons

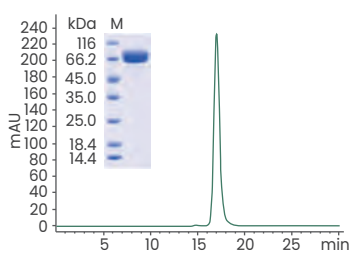
Cytokine	Cat#	Species	Purity	Endotoxin	Host
IFN gamma	11725-HNAE	Human	≥ 95% (SEC-HPLC)	< 5 EU/mg	<i>E. coli</i>
	GMP-11725-HNAE ★				
IFNA14	50669-M01H	Mouse	> 92%	< 1.0 EU/µg	HEK293 Cells
IFN-alpha 13	50670-M08H	Mouse	> 90%	< 1.0 EU/µg	HEK293 Cells
IFN-alpha B2/IFNA8	10347-HNCH	Human	> 95%	< 1.0 EU/µg	HEK293 Cells
IFN-beta	10704-HNAS	Human	> 95%	< 1.0 EU/µg	CHO Stable Cells
IL-29/IFN-lambda 1	12339-HNAH	Human	> 95%	< 1.0 EU/µg	HEK293 Cells
IL-28B/Interferon lambda-3	11890-H08H	Human	> 96%	< 1.0 EU/µg	HEK293 Cells
Interferon alpha 1/IFNA1	12341-H08Y	Human	> 95%		Yeast
Interferon alpha 2/IFNA2	13833-HNAY	Human	≥ 90%		Yeast
interferon-alpha/IFNA5	10342-H08Y	Human	> 90%		Yeast
Interferon alpha 7/IFNA7	10341-H08Y	Human	> 95%		Yeast
Interferon omega-1	10353-H08H	Human	> 95%	< 1.0 EU/µg	HEK293 Cells

★ GMP-grade available

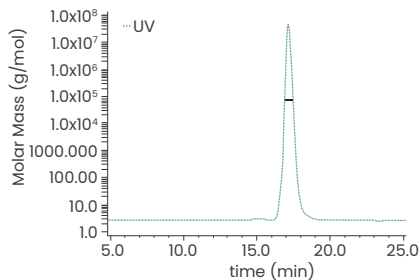
Tumor Necrosis Factors (TNFs)

Featured TNFs

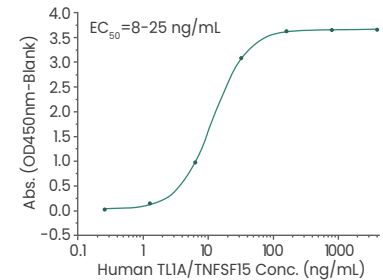
Human TLIA/TNFSF15 Protein (Trimer, His Tag), HPLC-verified (Cat#: 17049-H07H2)



Purity $\geq 95\%$ as determined by SDS-PAGE and $\geq 90\%$ as determined by SEC-HPLC.

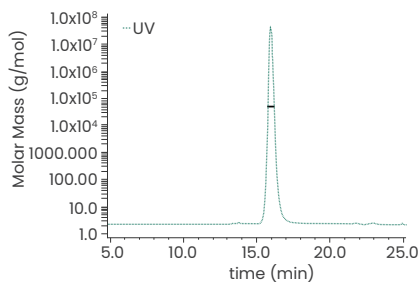


Purity $\geq 90\%$ and the molecular weight is around 74.2 kDa verified by SEC-MALS.

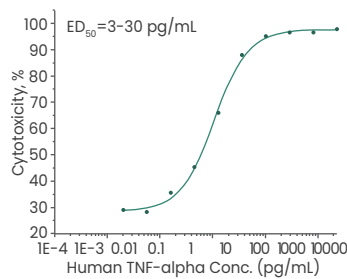


Immobilized Human DCR3 / TNFRSF6B Protein (Fc Tag) (Cat#: 10224-H02B) at $2 \mu\text{g/mL}$ ($100 \mu\text{L/well}$) can bind Human TLIA / TNFSF15 Protein (His Tag).

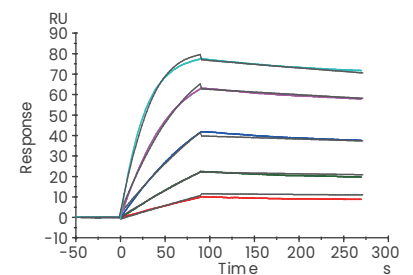
Human TNF-alpha Protein, HPLC-verified (Cat#: 10602-HNAE)



Purity $\geq 95\%$ and the molecular weight is around 50.3 kDa verified by SEC-MALS.




Measured in a cytotoxicity assay using L929 mouse fibrosarcoma cells in the presence of the metabolic inhibitor actinomycin D.



Captured Adalimumab on Anti-human IgG Fc via CM5 Chip can bind TNF- α with an affinity constant of 0.2843 nM as determined in a SPR assay (Biacore T200).

Additional TNF Proteins

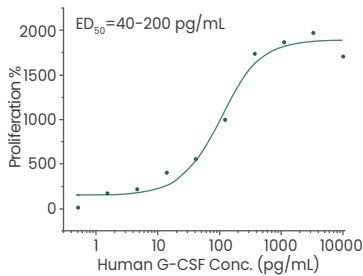
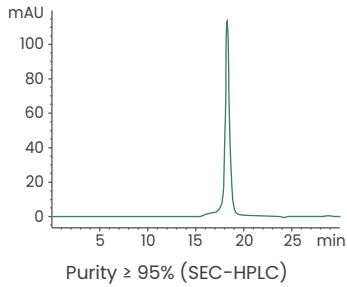
Cytokine	Cat#	Species	Purity	Endotoxin	Activity	Host
APRIL/TNFSF13	50965-M01H	Mouse	> 95%	< 1.0 EU/ μg		HEK293 Cells
CD30 Ligand/TNFSF8	10040-HNCH	Human	> 90%	< 1.0 EU/ μg		HEK293 Cells
CD40 Ligand/TNFSF5	10239-H01H	Human	$\geq 95\%$ (SEC-HPLC)	< 1.0 EU/ μg	Active	HEK293 Cells
CD70/CD27 Ligand	10780-H01H	Human	> 90%	< 1.0 EU/ μg	Active	HEK293 Cells
Fas Ligand/TNFSF6	10244-H07Y	Human	> 90%		Active	Yeast
GITR Ligand/TNFSF18	16080-H38H	Human	$\geq 90\%$ (SEC-HPLC)	< 1.0 EU/ μg		HEK293 Cells
LIGHT/TNFSF14	10386-H15H3	Human	> 90%	< 1.0 EU/ μg	Active	HEK293 Cells
OX40 Ligand/TNFSF4	13127-H04H	Human	> 90%	< 1.0 EU/ μg	Active	HEK293 Cells
RANKL/TNFSF11	11682-HNCH	Human	$\geq 90\%$ (SEC-HPLC)	< 1.0 EU/ μg	Active	HEK293 Cells
TLIA/TNFSF15	17049-H15H	Human	> 90%	< 1.0 EU/ μg	Active	HEK293 Cells
	5A7685-M07H1	Mouse	$\geq 95\%$ (SEC-HPLC)	< 1.0 EU/ μg	Active	HEK293 Cells
TNF-alpha	GMP-10602-HNAE 	Human	$\geq 95\%$ (SEC-HPLC)	< 5 EU/mg	Active	<i>E. coli</i>
TRAIL/TNFSF10	10409-HNAE	Human	$\geq 95\%$			<i>E. coli</i>
TWEAK/TNFSF12	90094-C04H	Human, Cynomolgus	> 95%	< 1.0 EU/ μg	Active	HEK293 Cells

 GMP-grade available

Colony-stimulating Factors (CSFs)

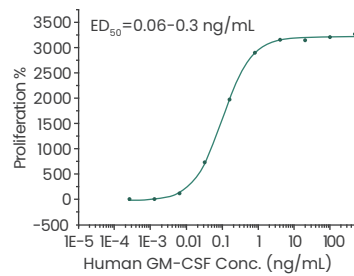
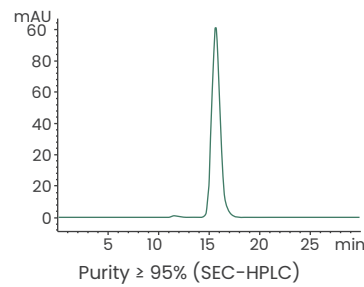
Featured CSFs

Human G-CSF (Isoform b) (Cat#: 10007-HNAH)



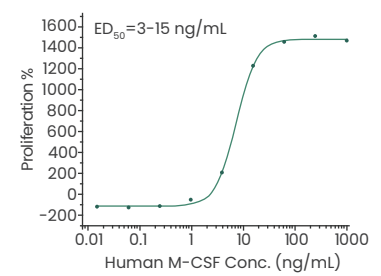
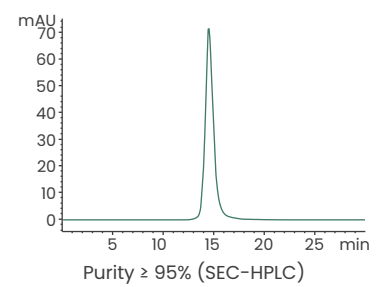
Measured in a cell proliferation assay using NFS-60 mouse myelogenous leukemia lymphoblast cells.

Human GM-CSF/CSF2 (Cat#: 10015-HNAH)




Measured in a cell proliferation assay using TF-1 human erythroleukemic cells.

Human M-CSF/CSF1 (Cat#: 11792-HNAH1)



Measured in a cell proliferation assay using M-NFS-60 mouse myelogenous leukemia lymphoblast cells.

Additional Highly Active CSFs

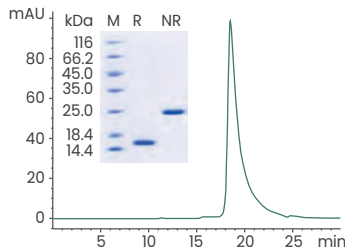
Cytokine	Cat#	Species	Purity	Endotoxin	Host
G-CSF	10007-HNAH	Human	\geq 95% (SEC-HPLC)	< 10 EU/mg	HEK293 Cells
	10007-H01H	Human	> 97%	< 1.0 EU/ μ g	HEK293 Cells
GM-CSF/CSF2	10015-HNAH	Human	\geq 95% (SEC-HPLC)	< 10 EU/mg	HEK293 Cells
	GMP-10015-HNAH 	Human	\geq 95% (SEC-HPLC)	< 5 EU/mg	HEK293 Cells
	10015-H07H	Human	> 92%	< 1.0 EU/ μ g	HEK293 Cells
	10015-H01H	Human	> 97%	< 1.0 EU/ μ g	HEK293 Cells
M-CSF/CSF1	11792-HNAH1	Human	\geq 95% (SEC-HPLC)	< 10 EU/mg	HEK293 Cells
	11792-H02H	Human	> 90%	< 1.0 EU/ μ g	HEK293 Cells
	11792-H08H	Human	> 95%	< 1.0 EU/ μ g	HEK293 Cells
	11792-H08H-B	Human	> 95%	< 1.0 EU/ μ g	HEK293 Cells
	11792-H08H1	Human	> 95%	< 1.0 EU/ μ g	HEK293 Cells
	11792-H49H-B	Human	\geq 90% (SEC-HPLC)	< 1.0 EU/ μ g	HEK293 Cells

 GMP-grade available

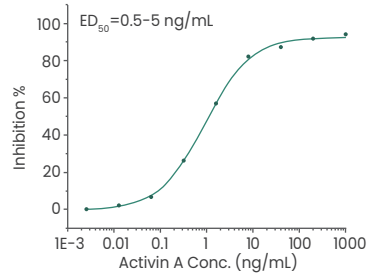
TGF-beta Superfamily

Featured TGF-beta Superfamily

GMP-grade Human/Mouse/Rat/Cynomolgus/Rhesus Activin A
(Cat#: GMP-10429-HNAH)

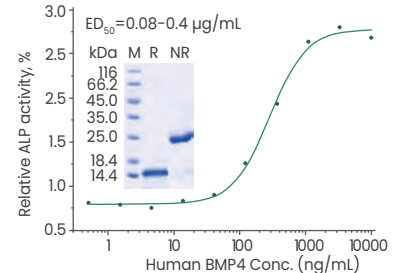


Purity \geq 95% as determined by SDS-PAGE and SEC-HPLC.



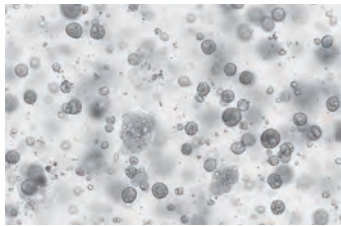
Measured by its ability to inhibit proliferation of MPC-11 cells. The specific activity $>$ 1000 U/mg.

Human BMP4
(Cat#: 10609-HNAE2)

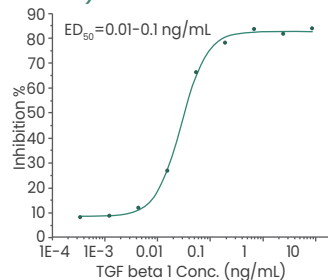


Measured in a cell proliferation assay using NIH-3T3 mouse embryonic fibroblast cells in the presence of Recombinant Mouse Klotho beta.

Human/Rhesus/Cynomolgus/Canine TGF beta 1
(Cat#: 10804-HNAC)

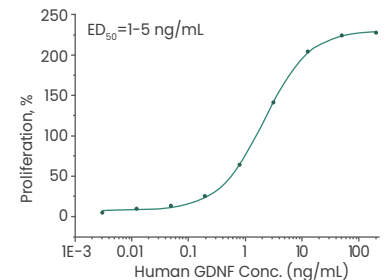


Human liver cancer organoids were cultured with FGF2, HGF, FGF7, EGF, FGF10, TGFB1, NOG, and RSPO1. Data provided by D1 Medical Technology.



Measured by its ability to inhibit cell proliferation of Mv-1-lu mink lung epithelial cells.

Human GDNF
(Cat#: 10561-HNAE)



Measured in a cell proliferation assay using SH-SY5Y human neuroblastoma cells in the presence of Recombinant Human GFR alpha-1/GDNF R alpha-1 His Chimera.

Additional TGF-beta Superfamily

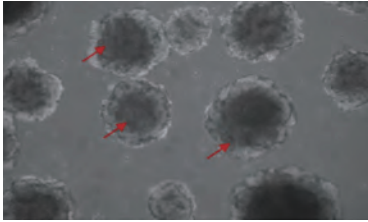
Cytokine	Cat#	Species	Purity	Endotoxin	Activity	Host
Activin A	10429-HNAH	Human, Mouse, Rat, Cynomolgus, Rhesus	\geq 95% (SEC-HPLC)	$<$ 10 EU/mg	Active	HEK293 Cells
	GMP-10429-HNAH					
Artemin	50176-M01H	Mouse	$>$ 90%	$<$ 1.0 EU/ μ g	Active	HEK293 Cells
BMP-2	10426-HNAE1	Human, Mouse, Rat, Rhesus, Canine	\geq 95%	$<$ 10 EU/mg	Active	<i>E. coli</i>
BMP4	10609-HNAE2	Human	\geq 95%	$<$ 1.0 EU/ μ g	Active	<i>E. coli</i>
GDF-15	10936-H01H	Human	$>$ 90%	$<$ 1.0 EU/ μ g	Active	HEK293 Cells
GDNF	10561-HNAE	Human	\geq 95% (SEC-HPLC)	$<$ 10 EU/mg	Active	<i>E. coli</i>
Inhibin beta B	10814-H08H	Human	$>$ 95%	$<$ 1.0 EU/ μ g	Active	HEK293 Cells
TGF beta 1	10804-HNAC	Human, Rhesus, Cynomolgus, Canine	$>$ 95%	$<$ 1.0 EU/ μ g	Active	CHO Stable Cells
	10804-H08H	Human	$>$ 95%	$<$ 1.0 EU/ μ g	Active	HEK293 Cells

GMP-grade available

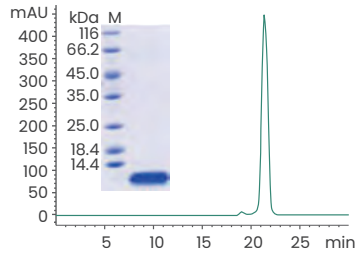
Epidermal Growth Factors (EGFs)

Featured EGFs

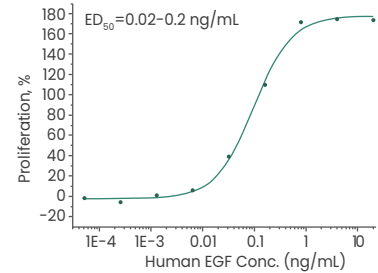
Human EGF Protein, HPLC-verified (Cat#: 10605-HNAE)



iPSC-derived human vascular organoids were cultured with FGF2 (Cat#: 10014-HNAE), VEGF165 (Cat#: 11066-HNAH), EGF (Cat#: 10605-HNAE). Red arrows represent vascular organoids.

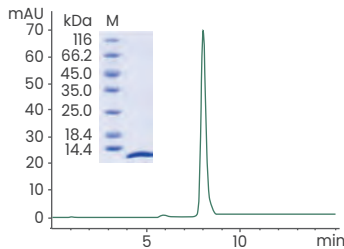


Purity \geq 95% as determined by SDS-PAGE and SEC-HPLC.

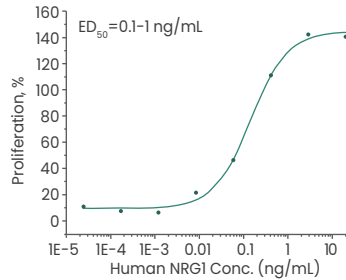


Measured in a cell proliferation assay using Balb/C 3T3 mouse embryonic fibroblasts.

Human NRG1 Protein, HPLC-verified (Cat#: 11609-HNAE)

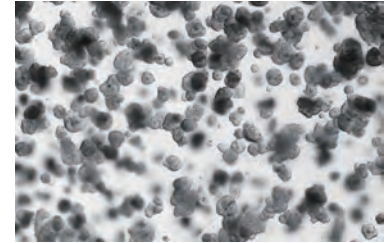


Purity \geq 95% as determined by SDS-PAGE and SEC-HPLC.



Measured in a cell proliferation assay using MCF-7 cells.

EGF Protein (Cat#: 50482-MNCH)



Human intestinal cancer organoids were cultured with RSPO1 (Cat#: 11083-HNAS), EGF (Cat#: 50482-MNCH), NOG (Cat#: 50688-M02H). Data provided by DI Medical Technology.

Additional EGF Proteins

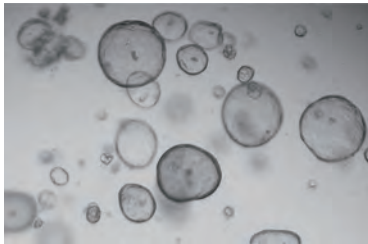
Cytokine	Cat#	Species	Purity	Endotoxin	Activity	Host
Betacellulin	12192-H02H	Human	> 90%	< 1.0 EU/ μ g	Active	HEK293 Cells
EGF	10605-HNAE	Human	\geq 95% (SEC-HPLC)	< 5 EU/mg	Active	<i>E. coli</i>
	GMP-10605-HNAE	Human	\geq 95% (SEC-HPLC)	< 5 EU/mg	Active	<i>E. coli</i>
Epiregulin	10677-H01H	Human	> 95%	< 1.0 EU/ μ g	Active	HEK293 Cells
HB-EGF	10325-HNAB	Human	> 95%	< 1.0 EU/ μ g	Active	Baculovirus-Insect Cells
LRIG1	50511-M08H	Mouse	> 95%	< 1.0 EU/ μ g		HEK293 Cells
Neuregulin-1/NRG1	11609-HNAE	Human	\geq 95% (SEC-HPLC)	< 10 EU/mg	Active	<i>E. coli</i>
Neuregulin-2/ NRG2	21207-H08H	Human	\geq 90% (SEC-HPLC)	< 1.0 EU/ μ g		HEK293 Cells
Neuregulin-3/ NRG3	16071-H08H	Human	> 95%	< 1.0 EU/ μ g		HEK293 Cells
Neuregulin-4/ NRG4	12183-HNCE	Human	> 92%			<i>E. coli</i>
TGF-alpha	11252-HNAE	Human	> 90%		Active	<i>E. coli</i>

GMP-grade available

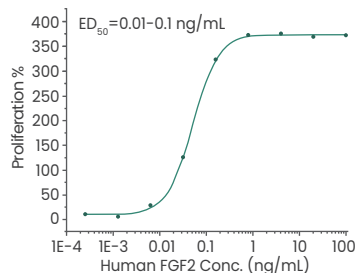
Fibroblast Growth Factors (FGFs)

Featured FGFS

Human basic FGF/FGF2 Protein (Cat#: 10014-HNAE)

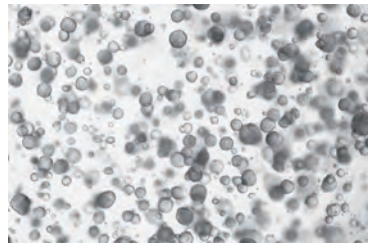


Human cholangiocarcinoma organoids were cultured with FGF2 (Cat#: 10014-HNAE), HGF (Cat#: 10463-HNAS), FGF7 (Cat#: 10210-H07E), EGF (Cat#: 50482-MNCH), FGF10 (Cat#: 10573-HNAE), NOG (Cat#: 50688-M02H), RSP01 (Cat#: 11083-HNAS). Data provided by DI Medical Technology.

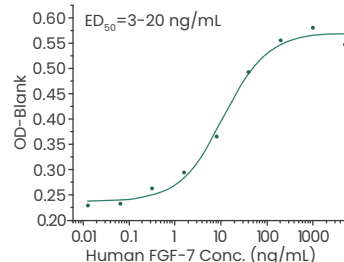


Measured in a cell proliferation assay using Balb/c 3T3 mouse embryonic fibroblasts.

Human KGF/FGF-7 Protein (Cat#: 10210-H07E)

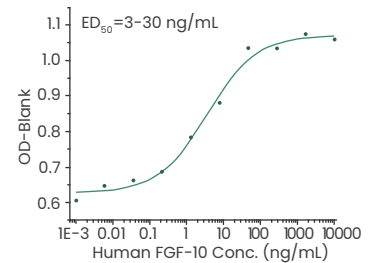


Human lung organoids were cultured with FGF2 (Cat#: 10014-HNAE), FGF4 (Cat#: 16043-HNAE), FGF7 (Cat#: 10210-H07E), EGF (Cat#: 50482-MNCH), FGF10 (Cat#: 10573-HNAE), NOG (Cat#: 50688-M02H), RSP01 (Cat#: 11083-HNAS). Data provided by DI Medical Technology.



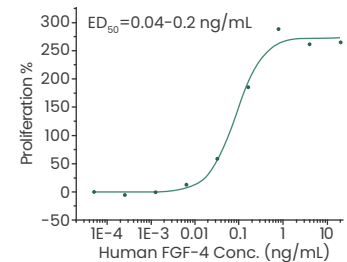
Measured in a cell proliferation assay using BaF3 mouse pro-B cells transfected with human FGFR2b.

Human FGF-10 Protein (Cat#: 10573-HNAE)



Measured in a cell proliferation assay using BaF3 mouse pro-B cells transfected with human FGFR2b.

Human FGF-4 Protein (Cat#: 16043-HNAE)



Measured in a cell proliferation assay using Balb/c 3T3 mouse fibroblasts.

Additional Highly Active FGFS

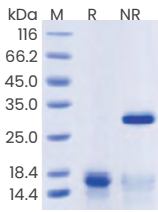
Cytokine	Cat#	Species	Purity	Endotoxin	Host
basic FGF/FGF2	GMP-10014-HNAE	Human	≥ 95%	< 10 EU/mg	<i>E. coli</i>
FGF1	10013-HNAE	Human	> 95%		<i>E. coli</i>
FGF-4	16043-HNAE	Human	≥ 95% (SEC-HPLC)	< 10 EU/mg	<i>E. coli</i>
FGF6	11528-HNAE	Human	> 95%		<i>E. coli</i>
KGF/FGF-7	GMP-10210-HNAE-L	Human	≥ 95% (SEC-HPLC)	<10 EU/mg	<i>E. coli</i>
FGF-8	16277-HNAE	Human	> 95%		<i>E. coli</i>
FGF-9	10262-HNAE	Human	≥ 95% (SEC-HPLC)	< 10 EU/mg	<i>E. coli</i>
FGF-10	10573-HNAE	Human	≥ 95% (SEC-HPLC)	< 5 EU/mg	<i>E. coli</i>
FGF12	70100-DNAE	Canine	> 90%		<i>E. coli</i>
FGF14	70046-DNAE	Canine	> 95%		<i>E. coli</i>
FGF16	16010-HNAB	Human, Cynomolgus	> 95%	< 1.0 EU/μg	Baculovirus-Insect Cells
FGF-17	12342-HNAE	Human	> 95%		<i>E. coli</i>
FGF-18	13206-H08H	Human	> 92%	< 1.0 EU/μg	HEK293 Cells
FGF-21	10911-HNAE	Human	≥ 95%	< 10 EU/mg	<i>E. coli</i>

GMP-grade available

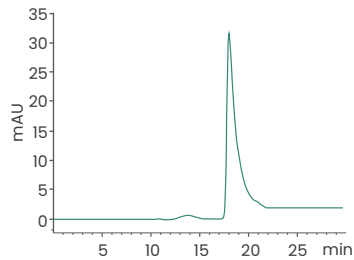
Platelet-derived Growth Factors (PDGFs)

Featured PDGFs

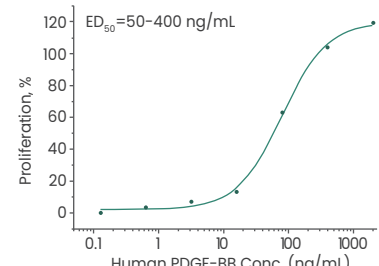
Human PDGF-BB Protein, HPLC-verified (Cat#: 10572-HNAE)



Purity \geq 95% as determined by SDS-PAGE.

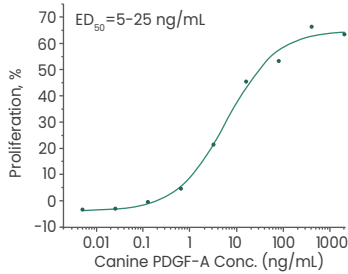


Purity \geq 95% as determined by SEC-HPLC.



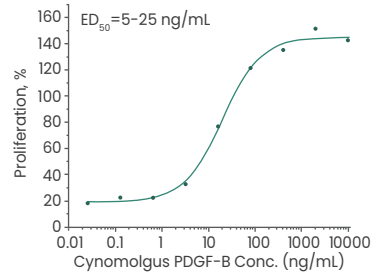
Measured in a cell proliferation assay using Balb/c 3T3 mouse embryonic fibroblast cells.

PDGF-A Protein (Cat#: 70052-D01H)



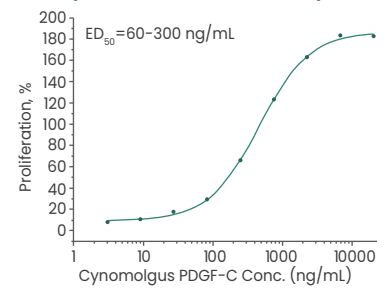
Measured in a cell proliferation assay using BALB/c 3T3 mouse fibroblasts.

PDGF-B Protein (Cat#: 90030-C04H)



Measured in a cell proliferation assay using BALB/c 3T3 mouse fibroblasts.

PDGF-C Protein (Cat#: 90031-C01H)



Measured in a cell proliferation assay using BALB/c 3T3 mouse fibroblasts.

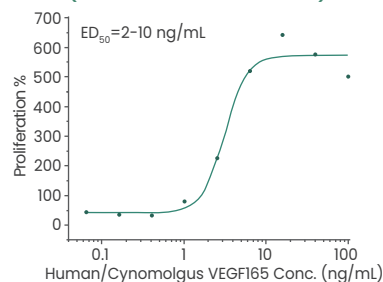
Additional PDGF Proteins

Cytokine	Cat#	Species	Purity	Endotoxin	Activity	Host
PDGF-A	13081-H07Y	Human	> 95%			Yeast
	80068-R07Y	Rat	> 95%			Yeast
	70052-D07Y	Canine	> 95%			Yeast
	70052-D01H	Canine	> 95%	< 1.0 EU/ μ g	Active	HEK293 Cells
	50447-M07Y	Mouse	> 95%			Yeast
PDGF-B	10572-H07Y	Human	\geq 90%	< 1.0 EU/ μ g		Yeast
	90030-C04H	Cynomolgus	> 95%	< 1.0 EU/ μ g	Active	HEK293 Cells
	50801-M07Y	Mouse	> 95%		Active	Yeast
	90030-C07Y	Rhesus	> 95%			Yeast
	70053-D07Y	Canine	> 90%			Yeast
PDGF-BB	10572-HNAE	Human	\geq 95% (SEC-HPLC)	< 50 EU/mg	Active	<i>E. coli</i>
PDGF-C	10273-H01H	Human	> 97%	< 1.0 EU/ μ g	Active	HEK293 Cells
	50458-M07Y	Mouse	> 95%			Yeast
	90031-C01H	Cynomolgus	> 90%	< 1.0 EU/ μ g	Active	HEK293 Cells

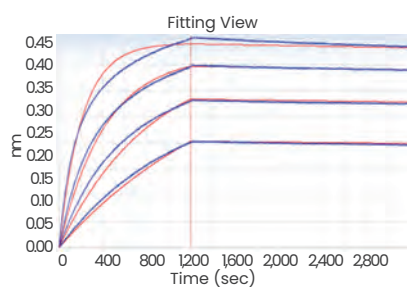
Vascular Endothelial Growth Factors (VEGFs)

Featured VEGFs

Human/Cynomolgus VEGF165 (Cat#: 11066-HNAH)

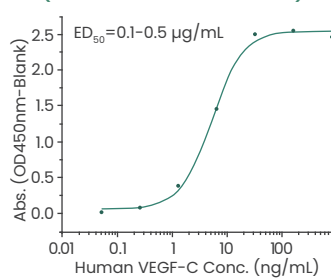


Measured in a cell proliferation assay using human umbilical vein endothelial cells (HUVEC).

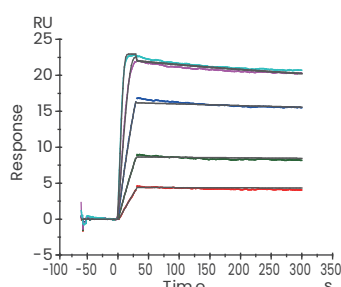


Biotins were conjugated to Human / Cynomolgus VEGF165 Protein by a certain molar ratio; Using the Octet RED System, the affinity constant of Human / Cynomolgus VEGF165 Protein, Biotinylated (Cat#: 11066-HNAH-B) bound to Avastin was 0.1 nM.

Human VEGF-C (Cat#: 10542-H08H)

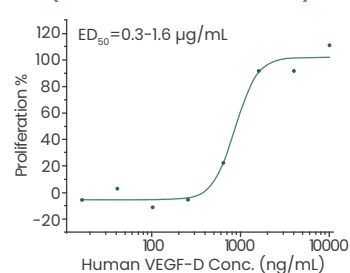


Measured in a cell proliferation assay using human umbilical vein endothelial cells (HUVEC).

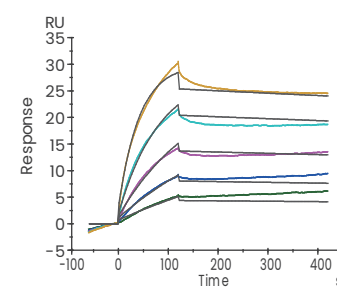


Captured Human VEGFR3/FLT4 Protein (Cat#: 10806-H02H) on anti-Human IgG Fc via CM5 Chip can bind VEGF-C (Cat#: 10542-H08H) with an affinity constant of 31.82 pM as determined in a SPR assay (Biacore T200).

Human VEGF-D (Cat#: 10557-H08H)



Measured in a cell proliferation assay using human umbilical vein endothelial cells (HUVEC).



Captured Human VEGFR3/FLT4 Protein (Cat#: 10806-H02H) on proA Chip can bind VEGF-D (Cat#: 10557-H08H) with an affinity constant of 39.03 nM as determined in a SPR assay (Biacore T200) (Routinely tested).

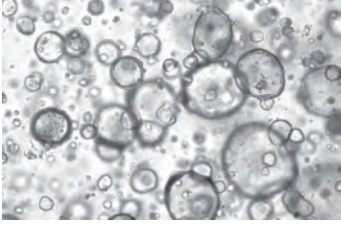
Additional VEGF Proteins

Cytokine	Cat#	Species	Purity	Endotoxin	Activity	Host
PLGF/PGF	10274-HNAE1	Human	> 90%			<i>E. coli</i>
	10274-H05H	Human	> 95%	< 1.0 EU/µg	Active	HEK293 Cells
VEGF165	11066-HNAH	Human, Cynomolgus	≥ 95% (SEC-HPLC)	< 10 EU/mg	Active	HEK293 Cells
	11066-HNAB	Human, Cynomolgus	> 97%	< 1.0 EU/µg	Active	Baculovirus-Insect Cells
	11066-H27H-B	Human, Cynomolgus	> 95%	< 1.0 EU/µg	Active	HEK293 Cells
VEGF110	29714-HNAH	Human	> 95%	< 1.0 EU/µg	Active	HEK293 Cells
VEGF121	10008-HNAH	Human	> 95% (SEC-HPLC)	< 1.0 EU/µg	Active	HEK293 Cells
VEGF121b	15692-HNAH	Human	> 95%	< 1.0 EU/µg	Active	HEK293 Cells
VEGF145	16444-HNAH	Human	> 95%	< 1.0 EU/µg		HEK293 Cells
VEGF183	10009-HNAB	Human	> 95%	< 1.0 EU/µg	Active	Baculovirus-Insect Cells
VEGF-B	10544-H01H	Human	> 95%	< 1.0 EU/µg	Active	HEK293 Cells
VEGF-C	10542-H08H	Human	> 95%	< 1.0 EU/µg	Active	HEK293 Cells
	80103-R08H	Mouse, Rat	> 95%	< 1.0 EU/µg	Active	HEK293 Cells
	80103-R01H	Mouse, Rat	> 90%	< 1.0 EU/µg	Active	HEK293 Cells
VEGF-D	10557-H08H	Human	> 95%	< 1.0 EU/µg	Active	HEK293 Cells

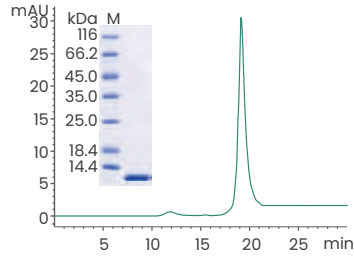
I Insulin-like Growth Factors (IGFs)

○ Featured IGFs

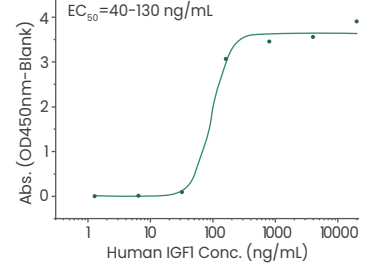
Human IGF1 Protein, HPLC-verified (Cat#: 10598-HNAE)



Human breast organoids were cultured with IGF1 (Cat#: 10598-HNAE), NRG1 Beta 1 (Cat#: 11609-H01H). Data provided by D1 Medical Technology.

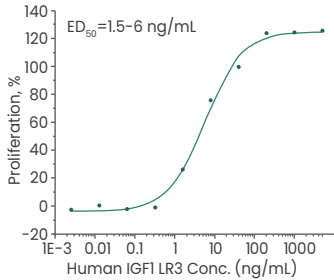


Purity \geq 95% as determined by SDS-PAGE and Purity \geq 90% as determined by SEC-HPLC.



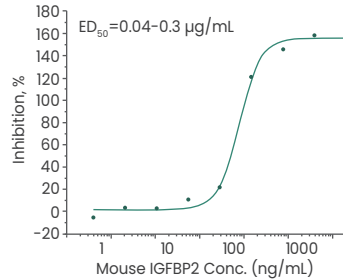
Immobilized Recombinant Human IGF1 Protein at 2 μ g/mL (100 μ L/well) can bind Recombinant Human IGFBP4 Protein (His Tag) (Cat#: 10967-H08H).

Human IGF1 LR3 Protein (Cat#: 10598-HNAY1)



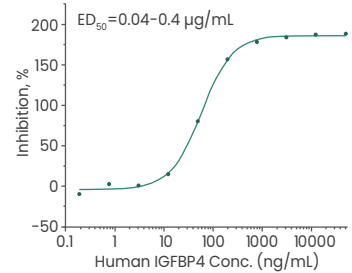
Measured in a serum-free cell proliferation assay using MCF-7 human breast cancer cells.

Mouse IGFBP2 Protein (Cat#: 51124-M08H)



Measured by its ability to inhibit the biological activity of IGFII on MCF7 human breast adenocarcinoma cells in the presence of 14 ng/mL human IGFII.

Human IGFBP4 Protein (Cat#: 10967-H08H)



Measured by its ability to inhibit the biological activity of IGF1 or IGFII on MCF7 human breast adenocarcinoma cells in the presence of 14 ng/mL human IGFII (Karey, K.P. et al. (1988); Cancer Research 48:4083.).

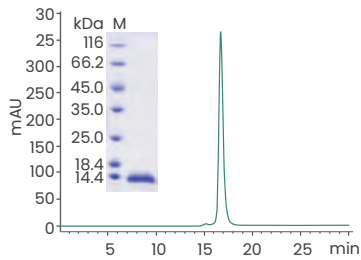
○ Additional Highly Active IGFs

Cytokine	Cat#	Species	Purity	Endotoxin	Activity	Host
IGF1	10598-HNAE	Human	\geq 90% (SEC-HPLC)	< 10 EU/mg	Active	<i>E. coli</i>
	10598-HNAY1	Human	> 95%		Active	Yeast
	50437-MNAY	Mouse	> 95%		Active	Yeast
IGF-II	13032-HNAY	Human	> 95%			Yeast
IGFBP1	90085-C08H	Rhesus	> 98%	< 1.0 EU/ μ g	Active	HEK293 Cells
	70254-D08H	Canine	> 95%	< 1.0 EU/ μ g		HEK293 Cells
IGFBP2	51124-M02H	Mouse	> 90%	< 1.0 EU/ μ g	Active	HEK293 Cells
IGFBP4	10967-H08H	Human	> 95%	< 1.0 EU/ μ g	Active	HEK293 Cells
	50250-M08H	Mouse	> 95%	< 1.0 EU/ μ g	Active	HEK293 Cells

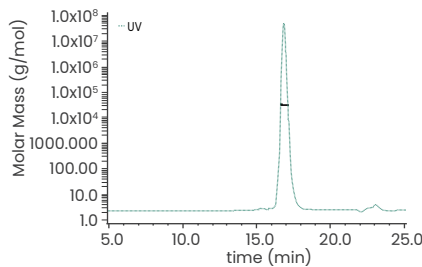
Neurotrophins

Featured Neurotrophins

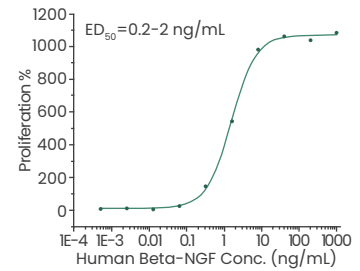
Human Beta-NGF Protein, HPLC-verified (Cat#: 11050-HNAC)



Purity \geq 95% by SDS-PAGE.
Purity \geq 90% by SEC-HPLC.

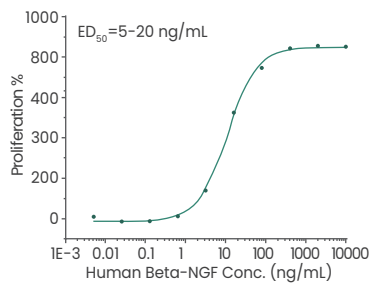


Purity \geq 90% and the molecular weight is around 29.7 kDa verified by SEC-MALS.



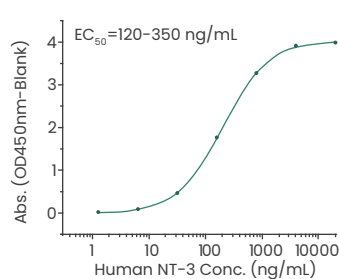
Measured in a cell proliferation assay using TF-1 human erythroleukemic cells.

Human Beta-NGF Protein (Cat#: 11050-HNAH)



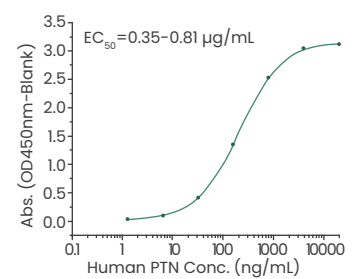
Measured in a cell proliferation assay using TF-1 human erythroleukemic cells.

Human Neurotrophin 3/NT-3 (Cat#: 10286-HNAE)



Immobilized human NT3 (Cat#: 10286-HNAE) at 2 μ g/ml (100 μ l/well) can bind human TrkB-Fch (Cat#: 10047-H03H).

Human Pleiotrophin/PTN (Cat#: 10288-HNAB)



Immobilized human PTN (Cat#: 10288-HNAB) at 10 μ g/ml (100 μ l/well) can bind rat SDC1-Fc (Cat#: 80344-R02H).

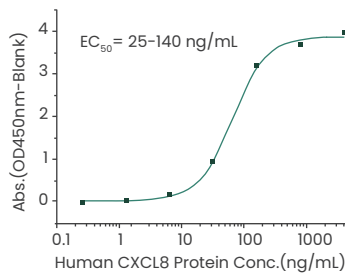
Additional Neurotrophin Proteins

Cytokine	Cat#	Species	Purity	Endotoxin	Host
BDNF	50240-M08H	Mouse	> 95%	< 1.0 EU/ μ g	HEK293 Cells
Beta-NGF	11050-HNAC	Human	\geq 90% (SEC-HPLC)	< 1.0 EU/ μ g	CHO Stable Cells
	50385-MNAC	Mouse	> 96%	< 1.0 EU/ μ g	CHO Stable Cells
	11050-HNAH	Human	> 95%	< 1.0 EU/ μ g	HEK293 Cells
CDNF	15691-H02H	Human	> 95%	< 1.0 EU/ μ g	HEK293 Cells
	15691-H08H	Human	> 95%	< 1.0 EU/ μ g	HEK293 Cells
	50569-M08H	Mouse	> 95%	< 1.0 EU/ μ g	HEK293 Cells
MANF	11324-H08H	Human	> 96%	< 1.0 EU/ μ g	HEK293 Cells
	15548-H02H	Human	> 90%	< 1.0 EU/ μ g	HEK293 Cells
	50954-M08H	Mouse	> 90%	< 1.0 EU/ μ g	HEK293 Cells
Neurotrophin 3/NT-3	10286-HNAE	Human	> 90%		<i>E. coli</i>
NT-4	10265-HNAE	Human	> 95%		<i>E. coli</i>
Pleiotrophin/PTN	10288-HNAB	Human	> 90%	< 1.0 EU/ μ g	Baculovirus-Insect Cells
	51000-MNAB	Mouse	> 95%	< 1.0 EU/ μ g	Baculovirus-Insect Cells

Chemokines

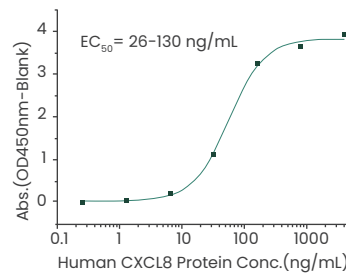
Featured Chemokines

Human IL-8/CXCL8 Protein
(Cat#: 10098-H08Y)



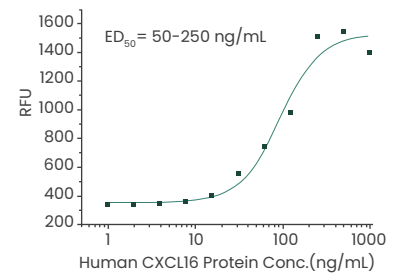
Immobilized Human IL-8/CXCL8 (His Tag) (Cat#: 10098-H08Y) at 2 µg/mL (100 µL/well) can bind Anti-IL-8/CXCL8 Antibody, Mouse Monoclonal (Cat#: 10098-MM18).

Human IL-8/CXCL8 Protein
(Cat#: 10098-HNCH2)



Immobilized Human IL-8/CXCL8 (His Tag) (Cat#: 10098-H08Y) at 2 µg/mL (100 µL/well) can bind Anti-IL-8/CXCL8 Antibody, Mouse Monoclonal (Cat#: 10098-MM18).

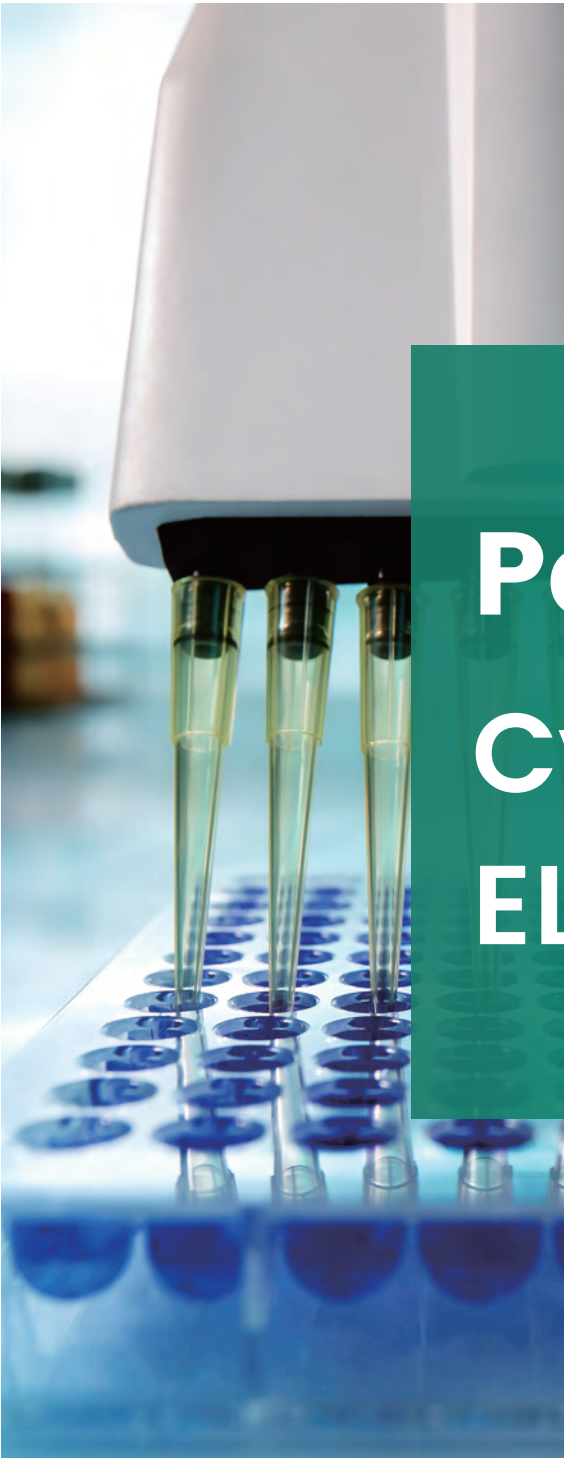
Human CXCL16 Protein
(Cat#: 10834-H08H)



Measured by its ability to chemoattract BaF3 mouse pro-B cells transfected with mouse CXCR6.

Additional Chemokine Proteins

Cytokine	Cat#	Species	Purity	Host	Tag
BCA-1/CXCL13	10621-HNAE	Human	> 95%	<i>E. coli</i>	Native
BRAK/CXCL14	10880-HNAE	Human	> 90%	<i>E. coli</i>	Native
CCL4/MIP-1	10899-H08Y	Human	> 90%	Yeast	C-His
CCL5/RANTES	10900-HNAE	Human	> 95%	<i>E. coli</i>	Native
CCL26/Eotaxin-3	10577-HNAB	Human	> 95%	Baculovirus-Insect Cells	Native
CCL27	10625-H07E	Human	> 95%	<i>E. coli</i>	N-His
CCL28	10618-H07E	Human	> 95%	<i>E. coli</i>	N-His
CXCL5	10889-HNAE	Human	> 95%	<i>E. coli</i>	Native
CXCL7/NAP-2	10878-H07E	Human	> 90%	<i>E. coli</i>	N-His
CXCL9/MIG	10888-HNAE	Human	> 90%	<i>E. coli</i>	Native
CXCL11	10876-HNAE	Human	> 95%	<i>E. coli</i>	Native
CXCL16	10834-H08H	Human	> 95%	HEK293 Cells	C-His
CXCL17	10879-H08Y	Human	> 90%	Yeast	C-His
Fractalkine/CX3CL1	10636-H08H	Human	> 95%	HEK293 Cells	C-His
GRO Beta/CXCL2	10586-HNCE	Human	> 95%	<i>E. coli</i>	N-cleavage
GRO gamma/CXCL3	12186-H07E	Human	> 90%	<i>E. coli</i>	N-His
IL-8/CXCL8	10098-H01HI	Human	> 95%	HEK293 Cells	N-hFc
IP-10/CXCL10	10768-HNAE	Human	> 90%	<i>E. coli</i>	Native
MCP-2/CCL8	10989-H2IE	Human	> 90%	<i>E. coli</i>	N-SUMO
MCP-3/CCL7	11926-H07E	Human	> 95%	<i>E. coli</i>	N-His
MIP-1 alpha/CCL3	11292-H08Y	Human	> 95%	Yeast	C-His
SDF-1/CXCL12	10118-H01H	Human	> 95%	HEK293 Cells	N-hFc

A close-up photograph of a white pipette dispensing a clear liquid into a 96-well plate. The plate is filled with a blue liquid, and the pipette tips are visible above the wells. The background is blurred, showing a laboratory setting.

Part 4

Cytokine ELISA Kits

Cytokine ELISA Kits

Sino Biological has independently developed a variety of meticulously validated high-quality human and mouse cytokine ELISA kits, covering IL-2, IL-6, BMP-2, GM-CSF, and IFN- γ . **Each kit has been tested according to eight QC standards to ensure the validity and reliability of the assay results.**

Eight QC Standards Ensure the High Performance of ELISA Kits

Detection Limit	Evaluating the sensitivity	Stability	Evaluating the validity period
Precision	Evaluating the repeated experimental errors	Interference	Analyzing result interference
Recovery	Evaluating the accuracy	Cross-reactivity	Evaluating the specificity
Linearity	Evaluating the accuracy	Natural Samples	Measuring each natural sample

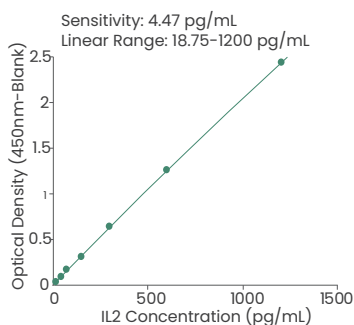
Product Advantages

- ✓ Compliance with ISO 9001 quality management system
- ✓ All kits developed in-house, ensuring product performance and stability
- ✓ Adherence to eight QC standards to ensure the validity and reliability of the assay results
- ✓ Validated sensitivity, specificity, stability, and reproducibility
- ✓ Applicable to natural samples such as cell supernatant and serum
- ✓ Ready-to-use and cost-effective ELISA kits available

Product Validation Data

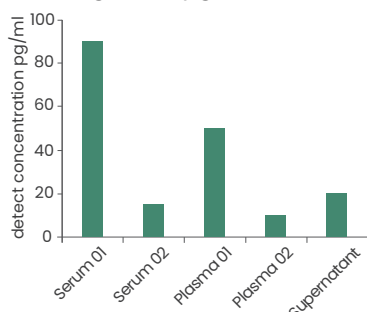
Human IL-2 ELISA Kit (Cat#: KIT11848)

Standard curve



The standard curve of human IL-2 ELISA Kit

Detecting IL-2 at pg-level in natural samples



Detection of human serum, plasma, and cell supernatant samples using Human IL-2 ELISA Kit.

Recovery

Sample	Average % Recovery	Range
supernatant (n=3)	99%	90-108%
serum (n=3)	76%	74-80%
plasma (n=3)	77%	73-82%

The average recovery of human IL-2 in supernatant, serum, and plasma samples was 99%, 76%, and 77%, respectively.

Precision

Sample	Intra-assay Precision			Inter-assay Precision		
	1	2	3	1	2	3
N	20	20	20	3	3	3
Mean (pg/mL)	50	128	769	54	136	779
SD	1.55	2.15	19.68	2.22	4.75	13.46
CV (%)	3.1	1.7	2.6	4.1	3.5	1.7

It has been verified that the intra/inter-precision of human IL-2 ELISA Kit is less than 10%.

For more details, please refer to the printed instruction manual accompanying the product delivery.

Product List of ELISA Kits

○ ELISA Kits

Cat#	Target	Species	Sample
KIT11848	IL-2	Human	S,C,P
KIT11725A	IFN gamma	Human	C
KIT10395A	IL-6	Human	S,C
KIT11050	Beta-NGF	Human	C
KIT10602	TNF-alpha	Human	C
KIT10270	TNF beta	Human	C
KIT10426	BMP-2	Human	R
KIT50114	IL-1 alpha/IL1A	Mouse	S,C
KIT11858	IL-3	Human	R
KIT11846	IL-4	Human	C
KIT15673	IL-5	Human	C
KIT50136	IL-6	Mouse	C
KIT11821	IL-7	Human	C
KIT10098	IL-8/CXCL8	Human	C
KIT10947A	IL-10	Human	C
KITCT011	IL-12	Human	C
KIT10360	IL-15	Human	R
KIT51303	IL-16	Mouse	S,C
KIT12047	IL-17	Human	C
KIT51065	IL-17	Mouse	C
KIT10119	IL-18	Human	S
KIT50073	IL-18	Mouse	S
KIT13089	IL-19	Human	S,C
KIT13060	IL-20	Human	C
KIT10584	IL-21	Human	R
KIT13059	IL-22	Human	S,U,P
KIT12339	IL-29	Human	C
KIT11064	IL-32	Human	S
KIT10134	CCL2	Human	S,U
KIT50368	CCL2/MCP-1	Mouse	C
KIT10900	CCL5/RANTES	Human	S,C,P
KIT10491	CCL16/LEC	Human	S
KIT10233	CCL17/TARC	Human	S
KIT50070	CXCL2	Mouse	S,C
KIT10889	CXCL5	Human	S,C,P
KIT10888	CXCL9/MIG	Human	S
KIT10768	CXCL10/IP-10	Human	S
KIT10936	GDF15	Human	S,U,P

○ ELISA Pair Sets

Cat#	Target	Species
SEKA11725	IFN gamma	Human
SEKA10602	TNF-alpha	Human
SEK50349	TNF-alpha	Mouse
SEKB10395	IL-6	Human
SEK10270	TNF beta	Human
SEK11050	Beta-NGF	Human
SEK10426	BMP-2	Human
SEK50114	IL-1 alpha/IL1A	Mouse
SEK11858	IL-3	Human
SEKA11846	IL-4	Human
SEKA15673	IL-5	Human
SEK11821	IL-7	Human
SEK10098	IL-8/CXCL8	Human
SEKA10947	IL-10	Human
SEKCT011	IL-12	Human
SEK10369	IL-13	Human
SEK10360	IL-15	Human
SEK10944	IL-16	Human
SEK51303	IL-16	Mouse
SEK12047	IL-17	Human
SEK51065	IL-17	Mouse
SEK10119	IL-18	Human
SEK50073	IL-18	Mouse
SEK13089	IL-19	Human
SEK13060	IL-20	Human
SEK13059	IL-22	Human
SEK12339	IL-29	Human
SEK11064	IL-32	Human
SEK10368	IL-33	Human
SEK10155	IL-37	Human
SEK10476	CCL14	Human
SEK10485	CCL20	Human
SEK10877	CXCL1	Human
SEK50070	CXCL2	Mouse
SEK10889	CXCL5	Human
SEK10876	CXCL11	Human
SEK10573	FGF10	Human
SEK10007	G-CSF	Human

S: Serum, C: Cell supernatant, P: Plasma, U: Urine; R: Recombinant protein

More cytokine ELISA kits, please visit <https://www.sinobiological.com/category/cytokine-elisa-kits>



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