SinoBiological

Toolkits for CAR-NK Therapy Targets

CAR-NK Cells: A New Paradigm in Tumor Immunotherapy

Natural killer (NK) cells are immune cells capable of killing target cells and can be genetically modified to express chimeric antigen receptors (CARs). CAR-NK cell therapy is an innovative type of cancer immunotherapy for solid tumors and hematological malignancies.

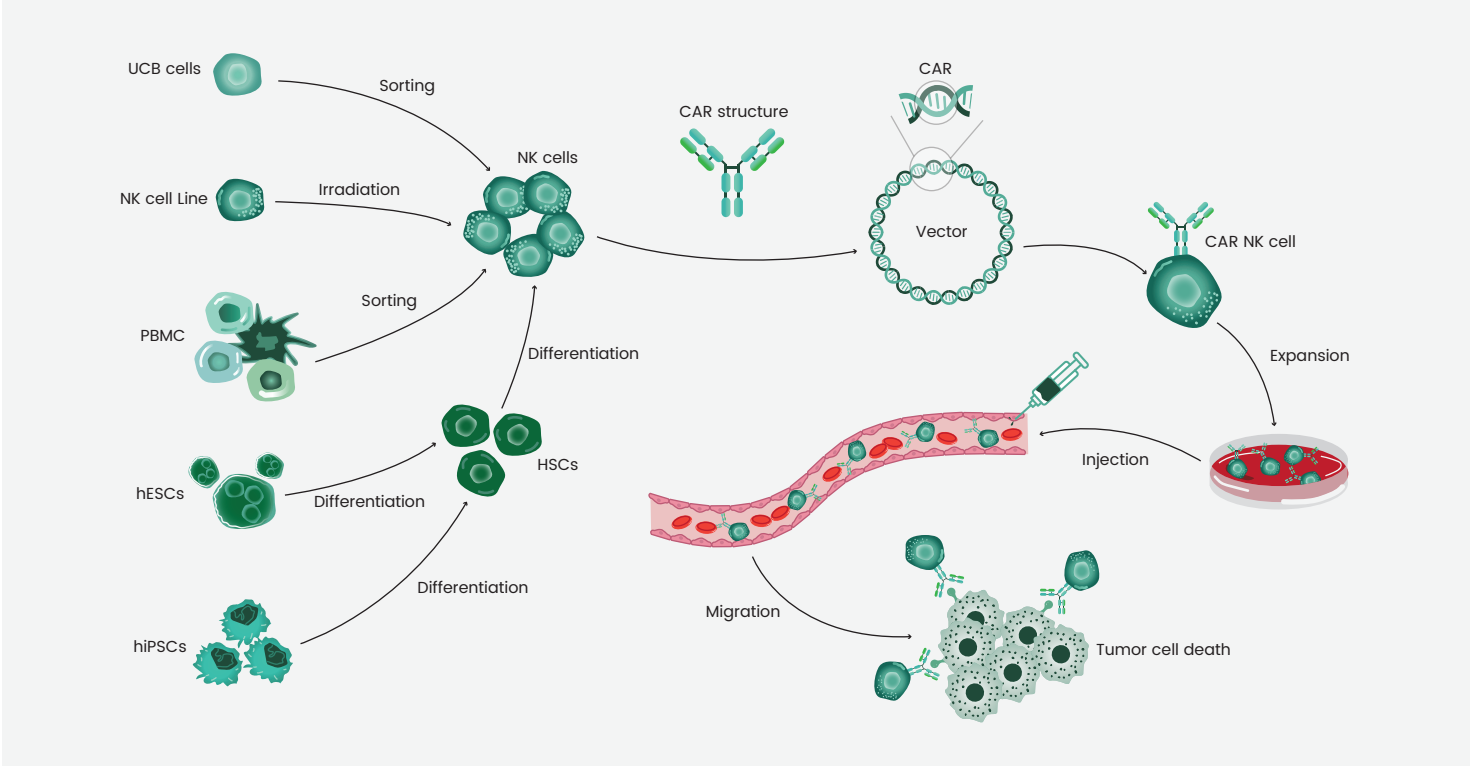
Functionally, CAR-NK cells kill target cancer cells in a CAR-dependent manner. Compared to traditional CAR-T cells, CAR-NK cells and unmodified NK cells offer safety advantages. The limited lifespan of CAR-NK cells greatly lowers the risk of on-target/off-tumor toxicity to normal cells. Additionally, reduced risk for alloreactivity and Graft versus host disease (GvHD) allows CAR-NK cells to be generated from a variety of sources, including NK92 cells, peripheral blood mononuclear cells (PBMCs), umbilical cord blood (UCB), and induced pluripotent stem cells (iPSCs).

Table 1: Comparison between CAR-NK and CAR-T Therapy

Therapy		CAR-NK	CAR-T
Source		Peripheral Blood (PB), Umbilical Cord Blood (UCB), Human Embryonic Stem Cell (hESC), Human Induced Pluripotent Stem Cell (hiPSC), and NK Cell Lines	Peripheral Blood (PB)
Off-the-shelf Manufacturing Feasibility		High	Low
Side Effects	GvHD	Never	Yes
	CRS	Less Likely	Always
	Off-target	Less Likely	Always
Immunosuppression in Solid Tumor		Less Likely	Always
Clinical & Preclinical Projects		>15	>500
Approved Therapies		0	4

• Abbreviations: GvHD (Graft versus Host Disease), CRS (Cytokine Release Syndrome) • Data: Apr, 2022

Figure 1: Sources and Generation Procedure of CAR-NK Cells



Reference: Faroogh Marofi1, et al. Cancer Science.2021

Targets for CAR-NK Cell Immunotherapy

Sino Biological provides a variety of CAR-NK-related proteins and antibodies with superior quality and reasonable price.

Table 2: Reagent Toolkits for CAR-NK Therapy Targets (Partial)

✓ : In Stock * : In Progress

CAR-NK Targets	Tumor Type	Disease	Clinical Trial	Also CAR-T Targets	Recombinant Proteins	Antibodies
CD19	Hematological Tumor	B-cell malignancies/Lymphoma/ Chronic lymphocytic leukemia	Yes	Yes	✓	✓
CD7	Hematological Tumor	Acute lymphoblastic leukemia (ALL)/ Acute myeloid leukemia (AML)	Yes	Yes	✓	✓
CD33	Hematological Tumor	AML	Yes	Yes	✓	✓
CD22	Hematological Tumor	B-cell lymphoma (BCL)	Yes	Yes	✓	✓
BCMA/TNFRSF17	Hematological Tumor	Multiple myeloma (MM)	Yes	Yes	✓	✓
CS1/SLAMF7/ CD319	Hematological Tumor	MM	Yes	Yes	✓	✓
CD38	Hematological Tumor	MM	Yes	Yes	✓	✓
CD138	Hematological Tumor	MM	No	Yes	✓	✓
CD4	Hematological Tumor	AML	No	Yes	✓	✓
FLT3	Hematological Tumor	B-ALL	No	No	✓	✓
CD20	Hematological Tumor	Non-Hodgkin lymphoma (NHL)	No	Yes	✓	✓
Mesothelin	Solid Tumor	Ovarian/pancreatic cancer	Yes	Yes	✓	✓
NKG2D	Solid Tumor	Lung/Osteosarcoma/Prostate/ Hepatocellular carcinoma cancer (HCC)/Breast cancer	Yes	No	✓	✓
NKG2D ligand	Solid Tumor	Ovarian/Lung/Liver cancer	Yes	No	✓	✓
ROBO1	Solid Tumor	Pancreatic cancer	Yes	No	*	*
PSMA	Solid Tumor	Prostate cancer	Yes	Yes	✓	✓
GD2	Solid Tumor	Neuroblastoma/Ewing sarcomas	Yes	Yes	*	*
IL3RA/CD123	Solid Tumor	AML	No	Yes	✓	✓
CD5	Solid Tumor	Leukemia/Lymphoma	No	Yes	✓	✓
CXCR4/CD184	Solid Tumor	Myeloma	No	No	*	✓
EGFR or EGFRvIII	Solid Tumor	Breast cancer/Glioblastoma	No	Yes	✓	✓
EpCAM	Solid Tumor	Breast/Colorectal cancer	No	Yes	✓	✓
PD-L1	Solid Tumor	Tens of cancers	Yes	Yes	✓	✓
HER2/ERBB2	Solid Tumor	Breast/Ovarian/Gastric/ Glioblastoma/Other cancers	Yes	Yes	✓	✓
MUC1	Solid Tumor	Solid tumors	Yes	Yes	✓	✓
Glypican-3/ GPC3	Solid Tumor	Ovarian/Liver/HCC	No	Yes	✓	✓
Folate receptor alpha/FRα	Solid Tumor	Ovarian cancer	No	No	✓	✓
CD147	Solid Tumor	Liver cancer	No	Yes	✓	✓
c-MET	Solid Tumor	Liver cancer	No	No	✓	✓
CEA	Solid Tumor	Colorectal cancer	No	Yes	✓	✓
GPA7	Solid Tumor	Melanoma	No	No	*	*
PSCA	Solid Tumor	Ladder carcinoma	No	Yes	*	✓
B7-H3	Solid Tumor	Lung cancer	No	Yes	✓	✓

Data Illustration for Solid Tumor CAR-NK Targets

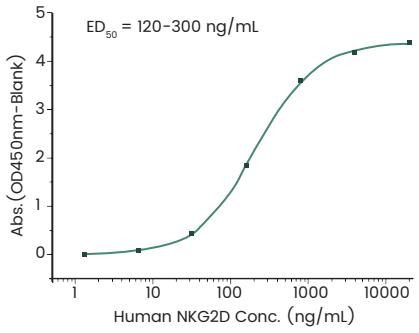
NKG2D & NKG2D Ligands

NKG2D, an activating NK cell receptor, can regulate the cytotoxic potential of NK cells against cancer by interacting with its tumor-associated overexpression ligands, including MICA, MICB, and ULBPs (ULBP1, ULBP2, ULBP3, ULBP4, ULBP5, ULBP6). The NKG2D-NKG2D ligand pathway is a promising target for immunotherapy and presents a suitable foundation for NK-focused CAR design.

High Activity NKG2D and NKG2D Ligands Proteins from Various Species

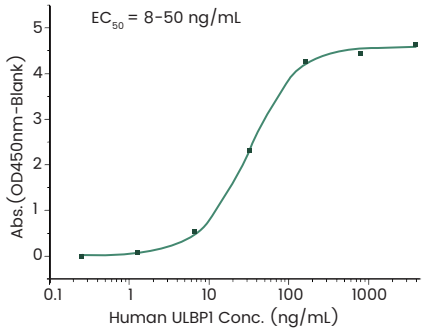
Binding Activity Validated By ELISA Assay

Human NKG2D (Cat#: 10575-H01S)

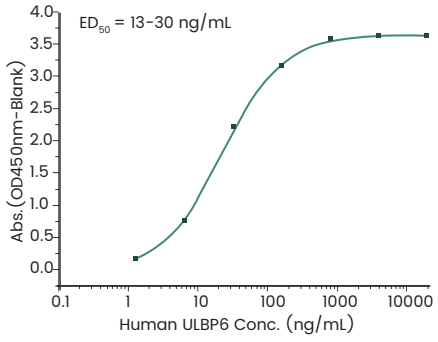


Bind with Human MICA (Cat#: 12302-H08H)

Ligands Bind with NKG2D (Cat#: 10575-H07B)



Human ULBP1 (Cat#: 10679-H03H)



Human ULBP6 (Cat#: 15759-H02H)

Mouse NKG2D (57340-M01B)

Tag: Fc
Expressed Host: Insect Cells
Purity: > 90 % (SDS-PAGE)
Activity: Testing in progress

Rhesus NKG2D (90164-C07B)

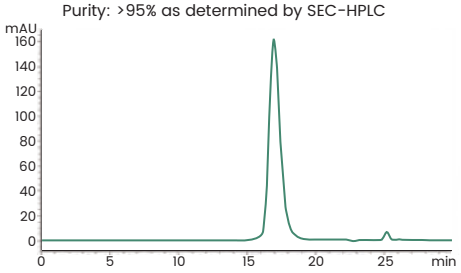
Tag: His
Expressed Host: Insect Cells
Purity: > 95 % (SDS-PAGE)
Activity: Validated

Recombinant Ligands for NKG2D

MICA		MICB	ULBP1		ULBP4
Fc Tag 12302-H02H (H)	His Tag 12302-H08H (H)	Fc & His Tag 10759-H03H (H)	Fc & His Tag 10679-H03H (H)	His Tag 10679-H08H (H)	Fc Tag 16073-H02H (H)
His Tag 12302-H08H1 (H)	His Tag 90924-C08H (Cy)	His Tag 10759-H08H (H)	AVI & His Tag 10679-H27H-B (H)		His Tag 16073-H08H (H)

Human MICA (Cat#: HPLC-12302-H08H)

Purity: >95% as determined by SEC-HPLC

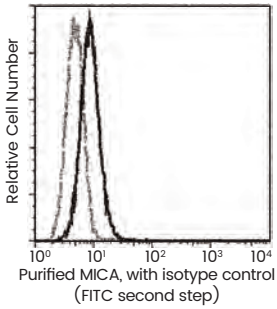


ULBP6		ULBP2	
Fc Tag 15759-H02H (H)		Fc Tag 12143-H02H (H)	His Tag 12143-H08H (H)
His Tag 15759-H08H (H)		AVI & His Tag 12143-H27H-B (H)	

Note:
H (Human)
Cy (Cynomolgus)

A comprehensive panel of antibodies targeting NKG2D, MICA, MICB, ULBP1, and ULBP2 for various applications (FCM, ELISA, WB, IHC, IF, etc.)

Anti-MICA Antibody



Cat#: 12302-MM04

Flow Cytometric Analysis of Human MICA Expression on HeLa Cells

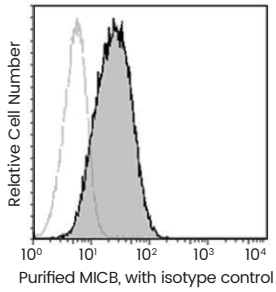
Cat#: 12302-MM04-A
Label: APC
Application: FCM
Clonality: Mouse mAb

Cat#: 12302-MM04-F
Label: FITC
Application: FCM
Clonality: Mouse mAb

Cat#: 12302-MM04-P
Label: PE
Application: FCM
Clonality: Mouse mAb

Cat#: 12302-RP02
Application:
WB, ELISA, IHC-P, IP
Clonality: Rabbit pAb

Anti-MICB Antibody



Cat#: 10759-MM12

Flow Cytometric Analysis of Anti-MICB on MCF-7 Cells

Cat#: 10759-MM12-A
Label: APC
Application: FCM
Clonality: Mouse mAb

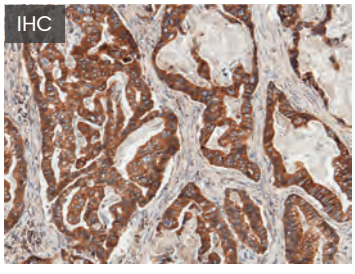
Cat#: 10759-MM12-F
Label: FITC
Application: FCM
Clonality: Mouse mAb

Cat#: 10759-MM12-P
Label: PE
Application: FCM
Clonality: Mouse mAb

Cat#: 10759-T40
Application:
WB, IHC-P
Clonality: Rabbit pAb

Anti-ULBP2 Antibody, Rabbit mAb

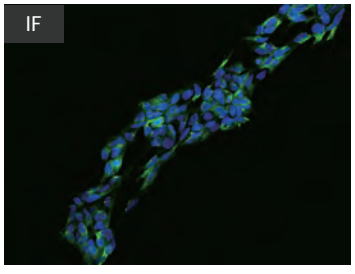
Cat#: 12143-R022



Immunochemical Staining of Human ULBP2 in Human Gastric cancer Cells

Anti-ULBP1 Antibody, Rabbit pAb

Cat#: 201510-T10



Immunofluorescence staining of ULBP1 in Hek293 cells

Anti-NKG2D Antibody, Mouse mAb

Cat#: 10575-MM02-H

Label: HRP
Application: ELISA

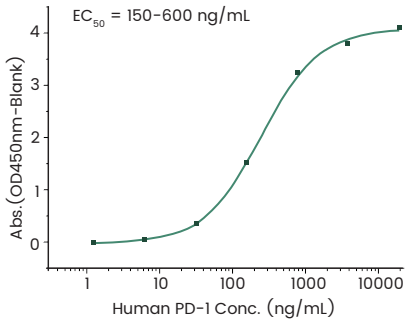
PD-L1

PD-L1 is upregulated in the tumor microenvironment and immunosuppressive cells in several cancer types. Preclinical tests showed that PD-L1 targeted CAR-NK cells have specific anti-tumor effects against 15 tumor cell lines in vitro and strong antitumor effects against triple-negative breast, bladder, and lung cancers in vivo.

High Activity Recombinant PD-L1

Human PD-L1 Protein

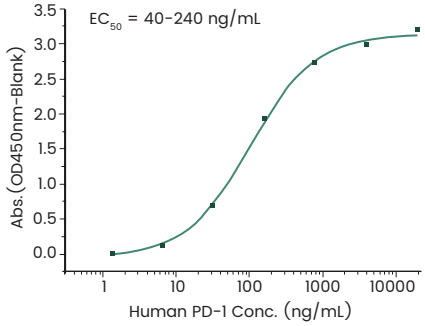
Cat#: 10084-H02H



Immobilized human PD-1 (Cat#: 10377-H08H) can bind human PD-L1 by ELISA

Mouse PD-L1 Protein

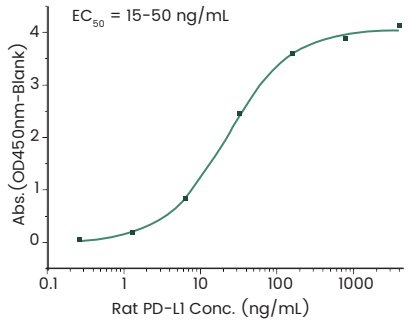
Cat#: 50010-M41H-B



Immobilized Human PD-1 His & hFc (Cat#: 10377-H03H) at Mouse PD-L1 (Biotinylated)

Rat PD-L1 Protein

Cat#: 80450-R08H



Immobilized Rat PD-L1 His can bind Rat PD-1 (Cat#: 80448-R02H)

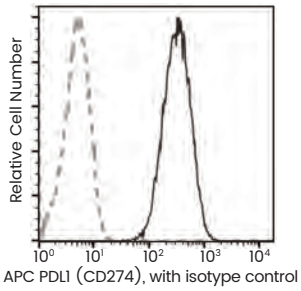
Cat#	Species	Expressed Host	Activity	Tag	Purity
10084-H05H	Human	HEK293 Cells	Active	mFc	> 95 %
10084-H08H	Human	HEK293 Cells	Active	His	> 98 %
10084-H08H-B	Human	HEK293 Cells	Active	His	> 95 %
10084-H49H-B	Human	HEK293 Cells	Active	His-AVI	> 95 %
50010-M02H	Mouse	HEK293 Cells	Active	hFc	> 95 %
50010-M03H	Mouse	HEK293 Cells	Active	hFc & His	> 95 %
50010-M08H	Mouse	HEK293 Cells	Active	His	> 98 %
80450-R02H	Rat	HEK293 Cells	Active	hFc	> 95 %
90251-C02H	Cynomolgus, Rhesus	HEK293 Cells	Active	hFc	> 95 %
90251-C08H	Cynomolgus, Rhesus	HEK293 Cells	Active	His	> 95 %

PD-L1

Application Validated Antibodies

Anti-PD-L1 Antibody (APC), Mouse mAb

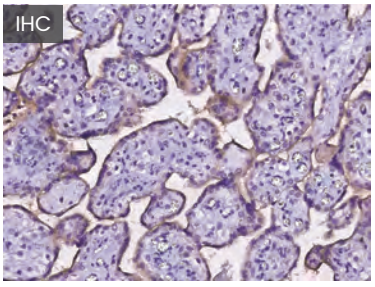
Cat#: 10084-MM36-A



Flow cytometric analysis of Human PD-L1 expression on HCC827 cells

Anti-PD-L1 Antibody, Rabbit mAb

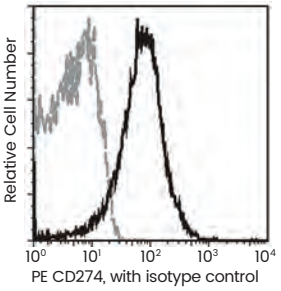
Cat#: 10084-T24



Immunochemical staining of human PD-L1 in human placenta cells

Anti-PD-L1 Antibody (PE), Rabbit mAb

Cat#: 50010-R485-P



Flow cytometric analysis of pd-L1 expression on spleen lymphocytes cells

Cat#	Species	Clonality	Application	Label
10084-MM36-F	Human	Mouse mAb	FCM	FITC
10084-MM36-P	Human	Mouse mAb	FCM	PE
10084-MM37-B	Human	Mouse mAb	ELISA	Biotin
10084-MM39T-B	Human	Mouse mAb	ELISA	Biotin
10084-MM39T-H	Human	Mouse mAb	ELISA	HRP
10084-R312-A	Human	Rabbit mAb	FCM	APC
10084-R312-F	Human	Rabbit mAb	FCM	FITC
10084-R312-P	Human	Rabbit mAb	FCM	PE
10084-R611-A	Human	Rabbit mAb	FCM	APC
10084-R611-F	Human	Rabbit mAb	FCM	FITC
10084-R611-P	Human	Rabbit mAb	FCM	PE
10084-R639	Human	Rabbit mAb	Neutralization	
10084-T24-H	Human	Rabbit pAb	ELISA	HRP
50010-R485-A	Mouse	Rabbit mAb	FCM	APC
90251-T20	Cynomolgus	Rabbit pAb	ELISA, IP	

HER2/ERBB2

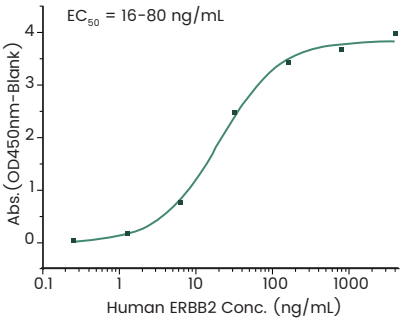
HER2/ERBB2 is frequently overexpressed on carcinomas such as breast, gastric, esophageal, ovarian, and endometrial cancers. HER2 is also expressed in 80% of glioblastomas and is associated with low survival rates. The applications of HER2-targeted CAR constructs are widely studied. HER2-Specific NK cells are promising strategy for tumor adoptive immunotherapy.

High Activity Recombinant HER2

Cat#	Species	Expressed Host	Activity	Tag
10004-H08H	Human	HEK293 Cells	Active	His
10004-H08H-B (Biotinylated)	Human	HEK293 Cells	Active	His
10004-H08H4	Human	HEK293 Cells	Active	His
10004-H27H-B (Biotinylated)	Human	HEK293 Cells	Active	AVI & His
10004-HCCH	Human	HEK293 Cells	Active	
10004-HCCH-B (Biotinylated)	Human	HEK293 Cells	Active	
70024-D08H	Canine	HEK293 Cells	Active	His
80079-RCCH	Rat	HEK293 Cells	Active	
90020-K02H	Rhesus	HEK293 Cells	Active	hFc
90020-K08H	Rhesus	HEK293 Cells	Active	His
90295-C02H	Cynomolgus	HEK293 Cells	Active	hFc
90295-C08H	Cynomolgus	HEK293 Cells	Active	His

Human HER2 Protein

Cat#: 10004-H02H



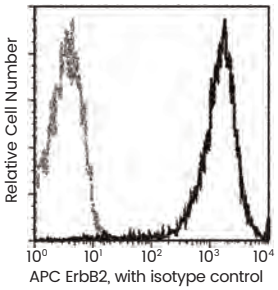
Immobilized ERBB2 Protein can bind Anti-ERBB2 Antibody

Application Validated Antibodies

Cat#	Species	Clonality	Application	Label
10004-MM01-B	Human	Mouse mAb	ELISA	Biotin
10004-MM03-F	Human	Mouse mAb	FCM	FITC
10004-MM03-P	Human	Mouse mAb	FCM	PE
10004-MM07-F	Human	Mouse mAb	FCM	FITC
10004-MM07T-A	Human	Mouse mAb	FCM	APC
10004-MM07T-P	Human	Mouse mAb	FCM	PE
10004-R205-H	Human	Rabbit mAb	ELISA	HRP
10004-R511-A	Human	Rabbit mAb	FCM	APC
10004-R511-B	Human	Rabbit mAb	ELISA	Biotin
10004-R511-F	Human	Rabbit mAb	FCM	FITC
10004-R511-P	Human	Rabbit mAb	FCM	PE
10004-RP03-B	Human	Rabbit pAb	ELISA	Biotin
50714-R001-P	Mouse	Rabbit mAb	FCM	PE
80079-T52	Rat	Rabbit pAb	WB, ELISA, IP	
80079-R006	Rat	Rabbit mAb	ELISA	
90020-MM01	Rhesus	Mouse mAb	ELISA	
90020-RP01	Rhesus	Rabbit pAb	ELISA	

Anti-HER2 Antibody (APC), Mouse mAb

Cat#: 10004-MM03-A



Flow cytometric analysis of anti-Human ErbB2 on SKBR3 cells

Mesothelin

Mesothelin (MSLN) is a tumor-differentiation antigen overexpressed in a plethora of cancers. MSLN is an attractive target for CAR-T or CAR-NK immunotherapy in solid tumors. Several MSLN targeted anti-cancer immunotherapies are now under development in preclinical settings and clinical trials. Results showed that MSLN-CAR-NK cells have robust and specific antitumor activity, suggesting that MSLN is a potential target for CAR-NK cells.

Recombinant MSLN Proteins

Cat#	Species	Expressed Host	Purity	Tag
13128-H01H	Human	HEK293 Cells	> 95%	hFc
13128-H08H-B (Biotinylated)	Human	HEK293 Cells	> 95%	His
13128-H08H1	Human	HEK293 Cells	> 95%	His

Anti-MSLN Antibodies

Cat#	Application	Clonality
13128-MM01	IHC-P	Mouse mAb
13128-MM08	ELISA	Mouse mAb
13128-MM12	ELISA, IHC-P	Mouse mAb

PSMA

Prostate-specific membrane antigen (PSMA) is specifically and highly expressed in prostate cancer (PCa) and is the most reliable target for CAR-T and CAR-NK cell therapies. PSMA-targeted CAR T cells proved to be effective on PCa in some preclinical and clinical trials. Some research showed that PSMA-targeted CAR NK cells can specifically recognize and effectively kill PSMA-positive cells.

Recombinant PSMA Proteins

Cat#	Species	Expressed Host	Purity	Tag
15877-H07H	Human	HEK293 Cells	> 95%	His
15877-H07H-B (Biotinylated)	Human	HEK293 Cells	> 90%	His

Anti-PSMA Antibodies

Cat#	Application	Clonality
15877-T26	ELISA, IHC-P, ICC/IF	Rabbit pAb
201427-T44	WB, IHC-P, IP	Rabbit pAb

EpCAM

EpCAM, overexpressed in many solid tumors, is a promising biomarker in the screening, staging, and therapeutic management of human malignancies. EpCAM targeted CAR-T cells have demonstrated their anti-tumor activities in solid cancer therapies. Currently, CAR-NK targeted therapies against EpCAM are also in development.

Recombinant EpCAM Proteins

Cat#	Species	Expressed Host	Purity	Tag
10694-H08H	Human	HEK293 Cells	> 96 %	His
10694-H27H-B (Biotinylated)	Human	HEK293 Cells	> 95%	AVI & His
50591-M08H	Mouse	HEK293 Cells	> 95%	His
80306-R02H	Rat	HEK293 Cells	> 98%	hFc
90299-C02H	Cynomolgus, Rhesus	HEK293 Cells	> 95%	hFc
90299-C08H	Cynomolgus	HEK293 Cells	> 95%	His

Anti-EpCAM Antibodies

Cat#	Application	Clonality	Label
10694-MM06-A	FCM	Mouse mAb	APC
10694-MM06-F	FCM	Mouse mAb	FITC
10694-MM06-P	FCM	Mouse mAb	PE
10694-R028-A	FCM	Rabbit mAb	APC
10694-R028-B	ELISA	Rabbit mAb	Biotin
10694-R028-F	FCM	Rabbit mAb	FITC
10694-R028-P	FCM	Rabbit mAb	PE

More Targets for Solid Tumor

High Quality Recombinant Proteins

Targets	Cat#	Species	Expressed Host	Purity	Activity	Tag
EGFR VIII	29662-H02B	Human	Insect Cells	>95%		hFc
EGFR VIII	29662-H27B-B	Human	Insect Cells	>90%		AVI & His
EGFR	10001-H02H	Human	HEK293 Cells	>97%	Active	hFc
EGFR	10001-H08B	Human	Insect Cells	>95%	Active	His
EGFR	10001-H08H	Human	HEK293 Cells	>95%	Active	His
EGFR	10001-H08H-B	Human	HEK293 Cells	>95%	Active	His
EGFR	10001-H08S	Human	CHO Stable Cells	>95%	Active	His
EGFR	10001-H27H-B	Human	HEK293 Cells	>95%	Active	AVI & His
EGFR	51091-M02H	Mouse	HEK293 Cells	>90%	Active	hFc
EGFR	51091-M08H	Mouse	HEK293 Cells	>95%	Active	His
EGFR	70026-D08B	Canine	Insect Cells	>90%	Active	His
EGFR	80100-R08H	Rat	HEK293 Cells	>98%	Active	His
EGFR	90285-C08B	Cynomolgus	Insect Cells	>95%	Active	His
EGFR	90317-K02H	Rhesus	HEK293 Cells	>95%		hFc
B7-H3	11188-H02H	Human	HEK293 Cells	>95%		hFc
B7-H3	11188-H27H-B	Human	HEK293 Cells	>95%		AVI & His
B7-H3	50973-M02H	Mouse	HEK293 Cells	>95%		hFc
B7-H3	80380-R08H	Rat	HEK293 Cells	>95%		His
B7-H3	90806-C08H	Cynomolgus	HEK293 Cells	>95%		His
CD147	10186-H02H	Human	HEK293 Cells	>97%		hFc
CD147	50332-M03H	Mouse	HEK293 Cells	>90%	Active	hFc & His
CD147	90636-C08H	Cynomolgus	HEK293 Cells	>95%		His
CD5	11027-H27H-B	Human	HEK293 Cells	>95%		AVI & His
CD5	50403-M08H	Mouse	HEK293 Cells	>95%		His
CD5	80374-R08H	Rat	HEK293 Cells	>95%	Active	His
CEA	11077-H02H	Human	HEK293 Cells	>95%		hFc
CEA	90891-C08H	Cynomolgus	HEK293 Cells	>90%		His
c-MET	10692-H03H	Human	HEK293 Cells	>95%	Active	hFc & His
c-MET	10692-H08H	Human	HEK293 Cells	>90%	Active	His
c-MET	10692-H20B1	Human	Insect Cells	>90%	Active	GST & His
c-MET	10692-H27H-B	Human	HEK293 Cells	>95%	Active	AVI & His
c-MET	50622-M02H	Mouse	HEK293 Cells	>92%	Active	hFc
c-MET	50622-M08H	Mouse	HEK293 Cells	>90%	Active	His
c-MET	70008-D08H	Canine	HEK293 Cells	>95%	Active	His
c-MET	80004-R02H	Rat	HEK293 Cells	>95%	Active	hFc
c-MET	90304-C02H	Cynomolgus, Rhesus	HEK293 Cells	>95%	Active	hFc
c-MET	90304-C08H	Cynomolgus, Rhesus	HEK293 Cells	>95%	Active	His
c-MET	90304-CCCH	Cynomolgus, Rhesus	HEK293 Cells	>90%	Active	
FRα	11241-H08H	Human	HEK293 Cells	>95%		His
FRα	50573-M08H	Mouse	HEK293 Cells	>95%		His
FRα	70115-D02H	Canine	HEK293 Cells	>90%		hFc
FRα	81073-R08H	Rat	HEK293 Cells	>95%		His
FRα	90950-C08H	Cynomolgus, Rhesus	HEK293 Cells	>95%		His
GPC3	10088-H02H2	Human	HEK293 Cells	>95%	Active	hFc
GPC3	10088-H08H	Human	HEK293 Cells	>87%	Active	His
GPC3	50989-M08B	Mouse	Insect Cells	>95%	Active	His
MUC1	12123-H02H	Human	HEK293 Cells	>90%		hFc

Data Illustration for Hematological Malignancies CAR-NK Targets

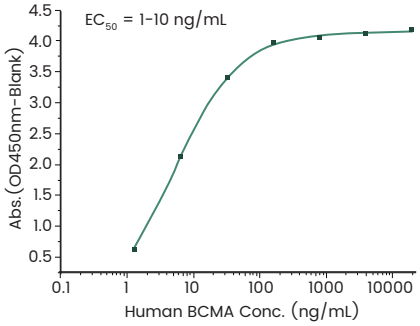
BCMA, CS1, CD38, and CD138

Multiple myeloma (MM) is a hematologic malignancy with an unmet need for innovative therapies. Many CAR T-cell and CAR NK-cell therapies are currently under development, and BCMA is the most popular target for cell therapy. In addition, CS1, CD38, and CD138 are also common targets for CAR constructs to treat MM.

High Activity Recombinant BCMA

Human BCMA Protein

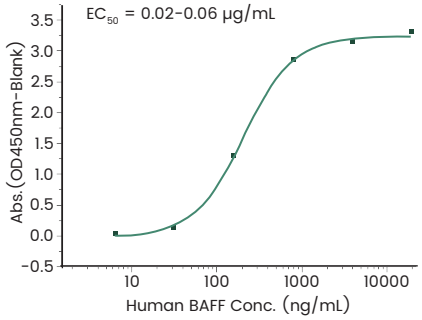
Cat#: 10620-H15H



Immobilized BCMA can bind BAFF (Cat#: 10056-H01H) by ELISA

Mouse BCMA Protein

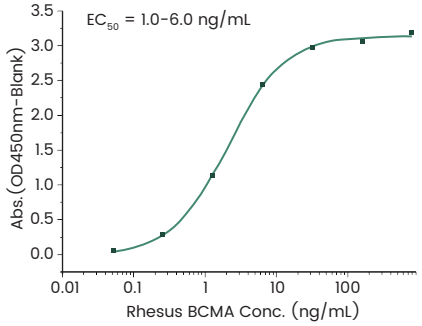
Cat#: 50076-M03H



Immobilized human BAFF (Cat#: 10056-HNCH) can bind mouse BCMA by ELISA

Rhesus BCMA Protein

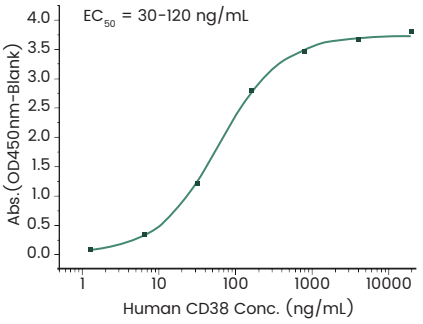
Cat#: 90103-C02H



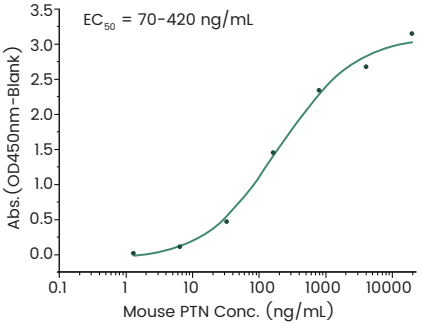
Immobilized Rhesus BCMA can bind Human BAFF (Cat#: 10056-H01H) by ELISA

Recombinant CS1, CD38, and CD138

Cat#	Species	Target	Expressed Host	Tag	Activity
11691-H02H	Human	CS1	HEK293 Cells	hFc	
11691-H08H	Human	CS1	HEK293 Cells	His	
50201-M08H	Mouse	CS1	HEK293 Cells	His	
10818-H27H-B	Human	CD38	HEK293 Cells	AVI & His	Active
50191-M08H	Mouse	CD38	HEK293 Cells	His	Active
65003-T08H	Rabbit	CD38	HEK293 Cells	His	Active
80229-R02H	Rat	CD38	HEK293 Cells	hFc	Active
80229-R08H	Rat	CD38	HEK293 Cells	His	Active
90050-C02H	Cynomolgus	CD38	HEK293 Cells	hFc	Active
90050-C08H	Cynomolgus, Rhesus	CD38	HEK293 Cells	His	Active
11429-H08H	Human	CD138	HEK293 Cells	His	
50641-M08H	Mouse	CD138	HEK293 Cells	His	
90938-C02H	Cynomolgus	CD138	HEK293 Cells	hFc	



Immobilized Human CD38 (Cat#: 10818-H08H) can bind Mouse Anti-CD38 Antibody (Cat#: 10818-MM03)



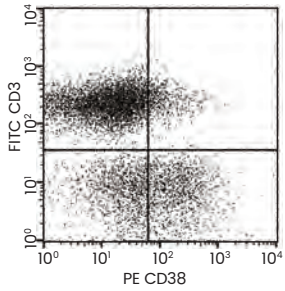
Immobilized Mouse PTN (Cat#: 51000-MNAB) can bind Rat CD138 (Cat#: 80344-R02H) by ELISA

BCMA, CS1, CD38, and CD138

Application Validated Antibodies

Anti-CD38 Antibody (PE), Mouse mAb

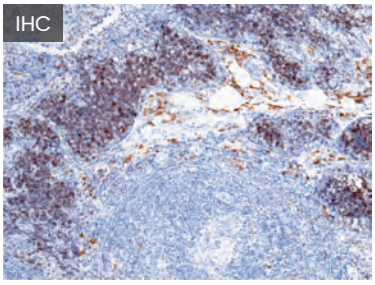
Cat#: 10818-MM12T-P



Flow cytometric analysis of Human CD38 expression on human whole blood lymphocytes

Anti-CD38Antibody, Rabbit mAb

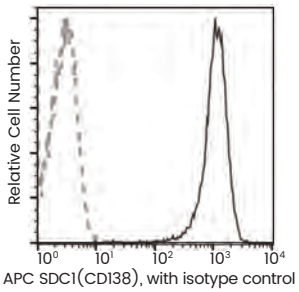
Cat#: 10818-R017



Immunochemical staining of human CD38 in human thymus cells

Anti-CD138 Antibody (APC), Rabbit mAb

Cat#: 11429-R017-A



Flow cytometric analysis of Human CD138 expression on RPMI8226 cells

Cat#	Antigen	Species	Clonality	Application	Label
10620-R049	BCMA	Human	Rabbit mAb	ELISA	
10620-T16	BCMA	Human	Rabbit pAb	ELISA	
11691-MM01	CS1	Human	Mouse mAb	ELISA	
11691-R002	CS1	Human	Rabbit pAb	ELISA	
50201-R003	CS1	Mouse	Rabbit mAb	ELISA	
50201-RP02	CS1	Mouse	Rabbit pAb	WB, ELISA	
10818-MM27-A	CD38	Human	Mouse mAb	FCM	APC
10818-MM27-C	CD38	Human	Mouse mAb	FCM	PerCP
10818-MM27-F	CD38	Human	Mouse mAb	FCM	FITC
10818-MM27-P	CD38	Human	Mouse mAb	FCM	PE
10818-R003	CD38	Human	Rabbit mAb	WB, ELISA, IP	
10818-R128	CD38	Human	Rabbit mAb	IHC-P	
50191-R032	CD38	Mouse	Rabbit mAb	ELISA, IHC-P	
50191-RP02	CD38	Mouse	Rabbit pAb	ELISA, IHC-P, FCM	
65003-MM01	CD38	Rabbit	Mouse mAb	ELISA	
80229-T26	CD38	Rabbit	Rabbit pAb	ELISA, IHC-P, ICC/IF	
11429-R017-C	CD138	Human	Rabbit mAb	FCM	PerCP
11429-R017-F	CD138	Human	Rabbit mAb	FCM	FITC
11429-R017-P	CD138	Human	Rabbit mAb	FCM	PE
50641-RP02	CD138	Mouse	Rabbit pAb	ELISA, IHC-P	
80344-T24	CD138	Rabbit	Rabbit pAb	ELISA, IHC-P	

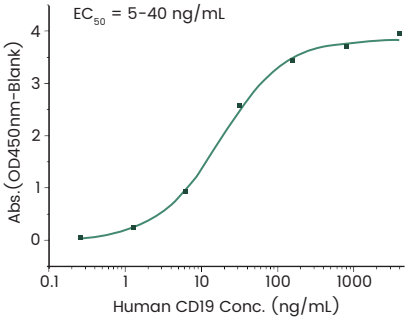
CD19, CD20, and CD22

CD19, CD20, and CD22 are popular targets for CAR-T cell therapy in B-cell lymphoma and leukemia. Clinical research shows that anti-CD19 CAR-T cell therapy has significant efficacy in cancer immunotherapy. However, CAR-T cell therapy is limited by various side effects and manufacturing difficulties. CAR-NK cells can be used as an alternative therapeutic strategy in hematological malignancies.

High Activity Recombinant Proteins

Human CD19 Protein

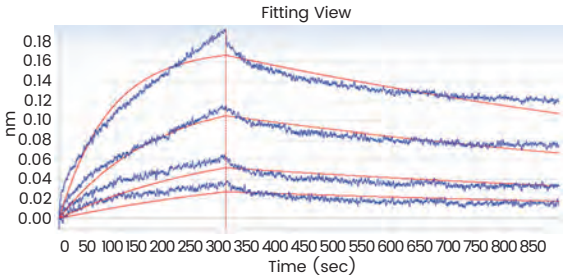
Cat#: 11880-H08H



Immobilized Human CD19 Can Bind Anti-CD19 Antibody (Cat: 11880-RP01)

Human CD20 Protein

Cat#: 11007-H34E-B

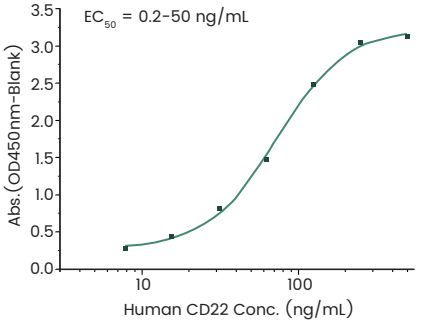


K_D=0.04μM

Bind to Mabthera valitdaed by Octet Assay

Human CD22 Protein

Cat#: 11958-H08H

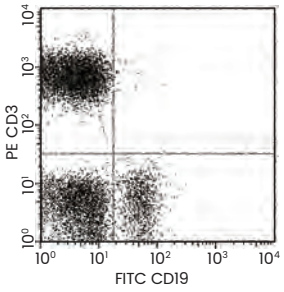


Immobilized Human CD22 Can Bind Anti-human CD22 mAb

Application Validated Antibodies

Anti-CD19 Antibody (FITC), Mouse mAb

Cat#: 11880-MM17-F

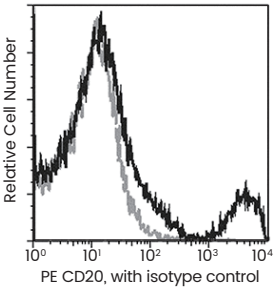


Flow cytometric analysis of Human CD19 expression on human whole blood lymphocytes

Cat#	App.	Label
11880-MM17-P	FCM	PE
11880-MM25	IHC-P	
50510-R014	IHC-P	

Anti-CD20 Antibody (PE), Rabbit mAb

Cat#: 11007-R001-P

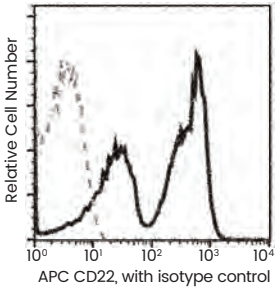


Profile of Anti-CD20 Reactivity on Peripheral Blood Lymphocytes by Flow Cytometry

Cat#	App.	Label
11007-R001-A	FCM	APC
11007-R001-C	FCM	PerCP
11007-R001-F	FCM	FITC
11007-MM90	WB, IHC-P	

Anti-CD22 Antibody (APC), Rabbit mAb

Cat#: 51177-R060-A



Flow cytometric analysis of Mouse CD22 expression on BABL/c splenocytes

Cat#	App.	Label
11958-MM13-C	FCM	PerCP
11958-MM13-F	FCM	FITC
11958-MM13-P	FCM	PE
51177-R026-F	FCM	FITC
51177-R026-P	FCM	PE
51177-R060-F	FCM	FITC
51177-R060-P	FCM	PE

CD33, CD123, and FLT3

Shared antigen expression with hematopoietic progenitor and heterogeneity are two challenges for engineering CAR constructs targeting acute myeloid leukemia (AML). CD123 and CD33 shared antigen expressions can cause on-target off-tumor toxicities. In combination with FLT3, CD123 and CD33 targeted CAR-NK logic-gated cell therapies are reported to solve these two challenges.

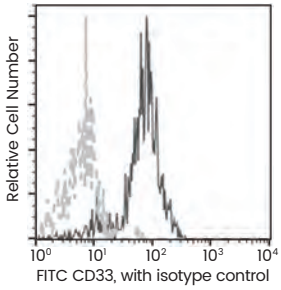
Recombinant Proteins from Multiple Species

Cat#	Species	Target	Expressed Host	Tag	Activity
12238-H02H	Human	CD33	HEK293 Cells	hFc	
50712-M08H	Mouse	CD33	HEK293 Cells	His	
90303-C08H	Cynomolgus, Rhesus	CD33	HEK293 Cells	His	
10518-H02H	Human	CD123	HEK293 Cells	hFc	
50810-M02H	Mouse	CD123	HEK293 Cells	hFc	
70077-D08H	Canine	CD123	HEK293 Cells	His	
10445-H08H	Human	FLT3	HEK293 Cells	His	Binds to human FLT3L (Cat: 10315-H07B) by ELISA
10445-H02H1	Human	FLT3	HEK293 Cells	hFc	
51119-M08H	Mouse	FLT3	HEK293 Cells	His	

Application Validated Antibodies

Anti-CD33 Antibody(FITC), Mouse mAb

Cat#: 12238-MM06-F

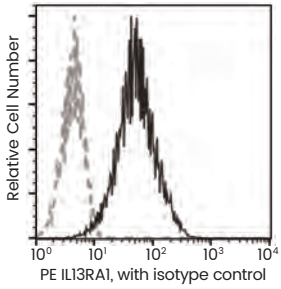


Flow cytometric analysis of Human CD33 expression on human whole blood monocytes

Cat#	App.	Label
12238-R001-A	FCM	APC
12238-R001-C	FCM	PerCP
12238-R001-F	FCM	FITC
12238-R001-P	FCM	PE

Anti-CD123 Antibody(PE), Mouse mAb

Cat#: 10518-MM57-P

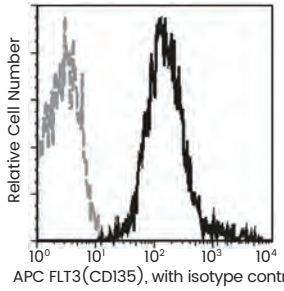


Flow cytometric analysis of Human CD123/IL13RA1 expression on KG-1 cells

Cat#	App.	Label
10518-MM57-F	FCM	FITC
10518-MM57	FCM	
10518-R017	WB, ELISA, IP	

Anti-FLT3 Antibody(APC), Mouse mAb

Cat#: 10445-MM02-A



Flow cytometric analysis of anti-human FLT3 on human whole blood monocytes

Cat#	App.	Label
10445-MM02-F	FCM	FITC
10445-MM02	FCM	
310270-T10	IHC-P, ICC/IF	
310683-T08	IHC-P	

Cytokine ELISA Kits

Cytokines detection is one of the main ways to indicate CAR-T or CAR-NK cell potency and it can also be used to study tumor immunosuppressive microenvironment. Recombinant proteins expressed in eukaryotic systems are used as controls in more than 90% of our ELISA Kits. All ELISA Kits are rigorously tested to ensure precision, accuracy, sensitivity, specificity, and reproducibility.

Table 4: T-cell Related Cytokine ELISA Kits (Partial List)

Molecule	Cat#	Sample	Limit of Detection (pg/mL)	Linear range (pg/mL)	Target Species
IL-2	KIT11848	Serum, Cell culture supernatant, Plasma	6.68	18.75-1200	Human
IL-3	KIT11858	IL-3 recombinant protein	2.9	6.25-400	Human
IL-4	KIT11846	Cell culture supernatant	2.54	10.94-700	Human
IL-5	KIT15673	Cell culture supernatant	2.13	4.69-300	Human
IL-6	KIT10395A	Serum, Cell culture supernatant	0.62	0.23-150	Human
IL-10	KIT10947A	Cell culture supernatant	7.26	18.75-1200	Human
IL-12 P70	KITCT011	Cell culture supernatant	12.93	39.07-2500	Human
IL-13	KIT10369	Cell culture supernatant	0.59	4.69-300	Human
IL-18	KIT10119	Serum	22.88	46.88-3000	Human
TNF-α	KIT10602	Cell culture supernatant	13.06	31.25-2000	Human
TNF-β	KIT10270	Cell culture supernatant	3.13	7.82-500	Human
IFN-γ	KIT11725A	Cell culture supernatant	15.1	23.44-1500	Human
GM-CSF	KIT10015	Cell culture supernatant	2.04	7.81-500	Human

8 Stringent QC Test Indicators: Ensuring High-quality ELISA Kits

Recovery

To evaluate the extent of the ELISA Kit results close to actual values.

Natural sample test

Make sure the ELISA Kit can detect natural samples and determine its applicable types of samples.

Cross-reactivity

To evaluate the specificity of the ELISA Kit and determine the binding ability of other molecules to the paired antibodies.

Interference

To determine the effects of other molecules to the interaction of antigens with paired antibodies.

Stability

To ensure the stability of the ELISA Kit for long-term storage.

Precision

To guarantee if similar results can be obtained when the same samples are repeatedly measured.

The limit of detection (LOD)

To determine the sensitivity of the ELISA Kit.

Range

To assess the accuracy of the ELISA Kit.

Sino Biological US Inc. (U.S.A)
Address: 1400 Liberty Ridge Drive, Suite 101,
Wayne, PA 19087
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Email: order_us@sinobiologicalus.com

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Fax: +49(0)6196 9678657
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Fax: +86-10-5095-3282
Email: order@sinobiological.com

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