



# Immunology- related ELISA Kits



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Immunology is an important branch of biology, which mainly studies the immune system in organisms. Immune system is a complex biological defense mechanism, which aims to protect the body from external pathogens (such as bacteria, viruses, fungi and parasites) and resist the proliferation of abnormal cells (such as cancer cells). The study of immunology covers all aspects of the immune system, including the structure and function of the immune system, the activation and recruitment of immune cells, the law of immune response and antigen removal, and the pathological process of diseases caused by immune abnormalities, so as to deeply understand the mechanism of immune response.

Immunology has a wide range of applications, including organ transplantation (immune rejection), oncology (immunotherapy), rheumatology (autoimmune diseases), virology, bacteriology, parasitology, psychiatry and dermatology. The study of immunology is helpful to reveal the function of immune system in health and disease, and to develop new treatments and drugs to regulate immune response.

CUSABIO is committed to providing high-quality immunology-related ELISA kits for researchers. These kits are highly sensitive and accurate, and are suitable for a wide range of immunology research fields. Whether you are concerned about cytokines, inflammatory factors, immunoregulatory molecules or other immunological markers, CUSABIO's ELISA kits can provide you with reliable data analysis.

## Immune System

The immune system is a highly complex system in the human body. Its main function is to protect the body from external invasive pathogens (such as bacteria, viruses, fungi and parasites), and it is also responsible for eliminating abnormal cells, such as cancer cells, that occur inside the body. The immune system consists of immune organs, immunocyte and immune molecules. Among them, immune organs include bone marrow, thymus, tonsils, spleen, lymph nodes, etc., immune cells include lymphocytes (T cells, B cells), phagocytes, NK cells, dendritic cells, etc., and immune molecules include TCR, BCR, cytokines and their receptors, immunoglobulin, etc.

**The immune system is mainly divided into two categories: innate immunity and acquired immunity.**

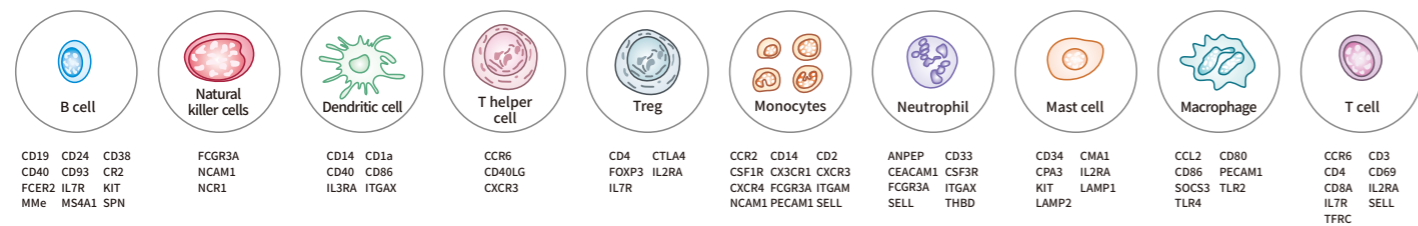
**1. Innate immune system:** This is an inherent nonspecific defense mechanism in the human body, also known as innate immunity. The innate immune system includes physical and chemical barriers, phagocytes, natural killer cells and complement system, which can identify and fight against any invading pathogens and provide the earliest immune defense for the body.

**2. Acquired immune system:** This is a highly specific defense mechanism, also known as adaptive immunity. The main feature of the acquired immune system is that it can recognize and remember specific pathogens, and when the body is attacked by the same pathogens again, it can respond faster and more effectively. This immune response is mainly completed by T lymphocytes and B lymphocytes.

## Immuncyte Markers

Immuncyte markers are expressed extracellular on the surface of immune cells, which are usually used to distinguish specific cell types from other cell types. The following figure shows common immune cells and their markers.

### Immuncyte



## Immunology-related Signal Pathways

Immunological research involves a variety of signal pathways, which play a key role in regulating the activity of immune cells, immune response, inflammation and immune tolerance. The following are some common immunological signaling pathways:

## Immunology

Antigen processing and presentation signal pathway	IL-17 signaling pathway	T cell receptor (TCR) signaling pathway
B cell receptor (BCR) signaling pathway	Inflammatory corpuscle signaling pathway	Th1 and Th2 cell differentiation pathways
Complement and coagulation cascades reaction	Leukocytes transendothelial migration	Th17 cell differentiation pathway
FcεRI signaling pathway	NF-κB signaling pathway	Thyroid hormone synthesis
FcγR-mediated phagocytosis	NK cells-mediated cytotoxicity	Toll-like receptor signaling pathway
Hematopoietic cell lineage	NOD-like receptor signaling pathway	Virus infection
JAK-STAT signal pathway	Osteoclast differentiation	

## Tumor Immunity

Tumor immunology is a branch of immune system related to tumor (cancer), which mainly focuses on how the immune system recognizes, attacks and resists tumor cells. Under normal circumstances, the immune system has a set of mechanisms to prevent the occurrence and development of tumors, including detecting and eliminating potential cancer cells through immune cells and molecules. However, tumor cells can develop a series of escape mechanisms to resist the attack of immune system, which is part of the reason for tumor formation and growth. Tumor immunology mainly focuses on the following aspects:

### ●Tumor antigen

Tumor antigen (TA) refers to the immunogenic protein and glycoprotein on the surface of tumor cells or lipoproteins. Most tumor antigens are the normal protein of human body, and their immunogenicity is usually low. Tumor antigen is often used as a tumor marker in tumor detection and diagnosis. At the same time, it is also an important target for tumor treatment. Tumor antigen is the core problem in the field of tumor immunology.

### ●Immune checkpoint

Immune checkpoint is a biological switch that can prevent immune cells from attacking cancer cells to prevent the immune system from being overactive. Some cancer cells use these checkpoints to escape immune attacks. Drugs can activate immune cells by blocking these checkpoints and help them attack cancer cells. For example, PD-1 and CTLA-4 are common immune checkpoint proteins.

### ●Immunotherapy

Immunotherapy is a treatment method that uses the immune system to fight cancer. It includes the use of antibody drugs, cell therapy (such as CAR-T cell therapy), vaccines and immunomodulatory drugs to activate, strengthen or guide patients' own immune system to attack tumor cells.

### ●Tumor immune monitoring

This is a method to detect the activity of patients' immune system to help doctors decide the best treatment strategy. Monitoring specific markers and cells in the immune system can provide information about the immune status.

## The List of CUSABIO's Immunology-related ELISA Kits

Code	Product Name	Sensitivity	Target
CSB-E09709h	Human Intestinal-type alkaline phosphatase,ALPI ELISA Kit	0.78 ng/mL	ALPI
CSB-E14975h	Human B-cell leukemia/lymphoma 6,Bcl6 ELISA Kit	4.68 pg/mL	BCL6
CSB-EL002658RA	Rat Beclin-1(BECN1) ELISA kit	0.039 ng/mL	BECN1
CSB-EL002868HU	Human B- and T-lymphocyte attenuator(BTLA) ELISA kit	0.11 ng/mL	BTLA
CSB-E10360h	Human Eotaxin 2/CCL24 ELISA Kit	67.660 pg/mL	CCL24
CSB-E07428m	Mouse monocyte chemotactic protein 2,MCP-2 ELISA kit	1.56 pg/mL	CCL8
CSB-EL004878HU	Human CD109 antigen(CD109) ELISA kit	23.4 pg/mL	CD109
CSB-E11178r	Rat soluble cluster of differentiation 14,sCD14 ELISA Kit	7 ng/mL	CD14

Code	Product Name	Sensitivity	Target
CSB-E13199h	Human soluble cluster of differentiation 14,sCD14 ELISA Kit	0.229 ng/mL	CD14
CSB-EL004881HU	Human CD160 antigen(CD160) ELISA kit	0.156 ng/mL	CD160
CSB-E14050h	Human soluble CD163(sCD163) ELISA Kit	0.39 ng/mL	CD163
CSB-EL004882MO	Mouse Scavenger receptor cysteine-rich type 1 protein M130(CD163) ELISA kit		CD163
CSB-EL004905HU	Human Endosialin(CD248) ELISA kit	0.078 ng/mL	CD248
CSB-E14285h	Human Soluble CD276,sCD276/sB7-H3 ELISA Kit	0.78 ng/mL	CD276
CSB-E09296h	Human soluble cluster of differentiation 28,sCD28 ELISA Kit	0.156 ng/mL	CD28
CSB-EL004929MO	Mouse ADP-ribosyl cyclase 1(CD38) ELISA kit	0.156 ng/mL	CD38
CSB-E11846h	Human cluster Of differentiation,CD44 ELISA Kit	19.5 pg/mL	CD44
CSB-EL004940HU	Human Leukocyte surface antigen CD47(CD47) ELISA kit	0.78 pg/mL	CD47
CSB-EL004943HU	Human CAMPATH-1 antigen(CD52) ELISA kit	19.5 ng/mL	CD52
CSB-E14107h	Human cluster of differentiation 63,CD63 ELISA Kit	0.156 ng/mL	CD63
CSB-EL004950MO	Mouse CD63 antigen(CD63) ELISA kit	15.6 pg/mL	CD63
CSB-E13297r	Rat Cluster of Differentiation 68, CD68 ELISA kit	0.156 ng/mL	CD68
CSB-E14099h	Human cluster of differentiation 73(CD73) ELISA Kit	0.78 ng/mL	CD73
CSB-E15768h	Human Soluble Cluster of Differentiation 80 (sCD80) ELISA Kit	31.25 pg/mL	CD80
CSB-EL004960HU	Human CD81 antigen(CD81) ELISA kit	0.039 ng/mL	CD81
CSB-EL004960MO	Mouse CD81 antigen(CD81) ELISA kit	11.75 pg/mL	CD81
CSB-EL004969HU	Human CD9 antigen(CD9) ELISA kit	0.039 ng/mL	CD9
CSB-EL004969MO	Mouse CD9 antigen(CD9) ELISA kit	1.17 pg/mL	CD9
CSB-EL005166HU	Human Carcinoembryonic antigen-related cell adhesion molecule 6(CEACAM6) ELISA kit	0.33 ng/mL	CEACAM6
CSB-EL006088HU	Human Cystatin-SN(CST1) ELISA kit	0.039 ng/mL	CST1
CSB-EL006095MO	Mouse Cystatin-F(CST7) ELISA kit	0.039 ng/mL	CST7
CSB-E09171h	Human cytotoxic T lymphocyte associated antigen 4,CTLA-4 ELISA Kit	31.25 pg/mL	CTLA4
CSB-E08183m	Mouse interferon-inducible protein 10,IP-10 ELISA Kit	0.78 pg/mL	CXCL10
CSB-E08181h	Human interferon-inducible protein 10,IP-10 ELISA Kit	7.8 pg/mL	CXCL10
CSB-E09024h	Human monocyte interferon gamma inducing factor,MIG ELISA Kit	7.8 pg/mL	CXCL9
CSB-E14155h	Human defensin, alpha 1 (DEFA1) ELISA kit	0.156 ng/mL	DEFA1
CSB-EL006655HU	Human Neutrophil defensin 3(DEFA3) ELISA kit	0.47 ng/mL	DEFA3
CSB-EL006656MO	Mouse Neutrophil defensin 4(DEFA4) ELISA kit	0.078 ng/mL	DEFA4
CSB-EL006657HU	Human Defensin-5(DEFA5) ELISA kit	0.156 ng/mL	DEFA5
CSB-EL006658HU	Human Defensin-6(DEFA6) ELISA kit	0.039 ng/mL	DEFA6
CSB-E14186h	Human $\beta$ -defensins 1 ELISA Kit	0.78 pg/mL	DEFB1
CSB-E14187h	Human $\beta$ -defensins 3 ELISA Kit	31.25 pg/mL	DEFB103A
CSB-E13201h	Human $\beta$ -defensins 2 ELISA Kit	15.6 pg/mL	DEFB4
CSB-E08520m	Mouse dipeptidyl peptidase IV,DPPIV ELISA Kit	0.078 ng/ml	DPP4
CSB-E08519r	Rat dipeptidyl peptidase IV,DPPIV ELISA Kit	0.195 ng/mL	DPP4
CSB-EL007756HU	Human Eosinophil peroxidase(EPX) ELISA kit	0.78 ng/mL	EPX
CSB-E15830m	Mouse Eosinophil Peroxidase (EPO) ELISA Kit	0.039 ng/mL	EPX
CSB-EL522052MO	Mouse Fibroblast growth factor 15(FGF15) ELISA kit		FGF15

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CSB-E10113h	Human fibroblast growth factor-23,FGF-23 ELISA Kit	0.78 pg/mL	FGF23
CSB-E17661c	Canine Fibroblast Growth Factor 23 (FGF23) ELISA Kit	0.78 pg/mL	FGF23
CSB-EL008653MO	Mouse Fibrinogen-like protein 1(FGL1) ELISA kit	7.8 pg/mL	FGL1
CSB-EL008653HU	Human Fibrinogen-like protein 1(FGL1) ELISA kit		FGL1
CSB-E11859h	Human Vitamin D-binding protein,DBP ELISA Kit		GC
CSB-E09401h	Human leukocyte antigen G,HLA-G ELISA Kit	0.31 ng/mL	HLA-G
CSB-EL010996MO	Mouse Indoleamine 2,3-dioxygenase 1(IDO1) ELISA kit	15.6 pg/mL	IDO1
CSB-EL011047HU	Human Interferon alpha/beta receptor 2(IFNAR2) ELISA kit		IFNAR2
CSB-E16948B	Bovine Interferon-Tau ELISA Kit	1.56 pg/mL	IFN-tau
CSB-EL011577HU	Human Zinc finger protein Aiolos(IKZF3) ELISA kit	6.25 pg/mL	IKZF3
CSB-E13687h	Human interleukin-18 binding proreïn(IL-18BP) ELISA Kit	3.9 pg/ml	IL18BP
CSB-EL011616HU	Human Interleukin-36 receptor antagonist protein(IL1F5) ELISA kit		IL1F5
CSB-EL011660MO	Mouse L-amino-acid oxidase(IL41) ELISA kit	3.9 pg/mL	IL41
CSB-EL011822HU	Human Interferon regulatory factor 7(IRF7) ELISA kit	5.8 pg/mL	IRF7
CSB-EL012719HU	Human Lymphocyte activation gene 3 protein(LAG3) ELISA kit	0.039 ng/mL	LAG3
CSB-E16370B	Bovine lipopolysaccharide binding protein (LBP) ELISA kit	3.9 ng/mL	LBP
CSB-E11184r	Rat lipopolysaccharide binding protein,LBP ELISA Kit	15.6 pg/mL	LBP
CSB-E09629h	Human lipopolysaccharide binding protein,LBP ELISA Kit	0.156 $\mu$ g/mL	LBP
CSB-EL012775MO	Mouse Lipopolysaccharide-binding protein(LBP) ELISA kit	3.12 ng/mL	LBP
CSB-EL012853HU	Human Liver-expressed antimicrobial peptide 2(LEAP2) ELISA kit	0.078 ng/mL	LEAP2
CSB-EL012935HU	Human Leukocyte immunoglobulin-like receptor subfamily A member 3(LILRA3) ELISA kit	0.039 ng/mL	LILRA3
CSB-E11812h	Human leukocyte immunoglobulin-like receptor subfamily B member 4,LILRB4 ELISA Kit	7.81 pg/mL	LILRB4
CSB-EL013066BO	Bovine lactoperoxidase (LPO) ELISA kit	1.56 mU/mL	LPO
CSB-EL013220MO	Mouse Lymphotoxin-beta(LTB) ELISA kit	3.12 pg/mL	LTB
CSB-E11289b	Bovine Lactoferrin,LTF/LF ELISA kit	3.12 $\mu$ g/mL	LTF
CSB-E17965h	Human mannan-binding lectin serine peptidase 1 (C4/C2 activating component of Ra-reactive factor) (MASP1)ELISA kit	0.78 ng/mL	MASP1
CSB-EL013510MO	Mouse Mannan-binding lectin serine protease 2(MASP2) ELISA kit	31.2 pg/mL	MASP2
CSB-E09012h	Human mast cell tryptase,MCT ELISA Kit	0.39 ng/mL	MCT
CSB-E14326m	Mouse Mast Cell Tryptase(MCT) ELISA Kit	7.8 pg/mL	MCT
CSB-E16222h	Human Macroprolactin ELISA Kit	0.5 $\mu$ U/mL	MPRL
CSB-EL015249HU	Human Interferon-induced GTP-binding protein Mx1(MX1) ELISA kit	3.9 pg/mL	MX1
CSB-EL017237HU	Human Alpha-1-acid glycoprotein 1(ORM1) ELISA kit	7.8 ng/mL	ORM1
CSB-E12730r	Rat $\alpha$ 1-Acid glycoprotein( $\alpha$ 1-AGP) ELISA Kit	3.125 ng/mL	ORM1
CSB-E08579b	Bovine $\alpha$ 1-Acid glycoprotein, $\alpha$ 1-AGP ELISA Kit	15.6 ng/mL	ORM1
CSB-E15980h	Human Prolactin Inducible Protein(PIP)ELISA Kit		PIP
CSB-E14124h	Human proteoglycan 4(PRG4) ELISA Kit		PRG4
CSB-E14125r	Rat proteoglycan 4(PRG4) ELISA kit	0.39 ng/mL	PRG4
CSB-E10028h	Human Prothymosin alpha (PTMA) ELISA Kit	3.9 pg/mL	PTMA
CSB-E12926h	Human Pentraxin 3 (PTX3)ELISA Kit	19.5 pg/ml	PTX3

Code	Product Name	Sensitivity	Target
CSB-E13852h	Human Resistin-like Molecule $\beta$ (RELM- $\beta$ ) ELISA Kit	11.7 pg/mL	RETNLB
CSB-EL019737HU	Human Receptor-interacting serine/threonine-protein kinase 3(RIPK3) ELISA kit		RIPK3
CSB-EL020623HU	Human Protein S100-A10(S100A10) ELISA kit	0.078 ng/mL	S100A10
CSB-E17221c	Canine S100 calcium binding protein A12/Calgranulin-C(S100A12) ELISA Kit	0.156 ng/mL	S100A12
CSB-EL020632MO	Mouse Protein S100-A4(S100A4) ELISA kit	15.6 pg/mL	S100A4
CSB-E13089h	Human S100 calcium binding protein A6/calgranulin A(S100A6) ELISA Kit	7.8 pg/ml	S100A6
CSB-EL020636HU	Human Protein S100-A7A(S100A7A) ELISA kit	0.078 ng/mL	S100A7A
CSB-EL020641RA	Rat Protein S100-A8(S100A8) ELISA kit	0.78 ng/mL	S100A8
CSB-E11336h	Human soluble cluster of differentiation 146,sCD146 ELISA Kit	0.31 ng/mL	sCD146
CSB-EL021065HU	Human Leukocyte elastase inhibitor(SERPINB1) ELISA kit	0.156 ng/mL	SERPINB1
CSB-EL021135HU	Human 14-3-3 protein sigma(SFN) ELISA kit		SFN
CSB-E07290m	Mouse transforming growth factor $\alpha$ ,TGF- $\alpha$ ELISA Kit	3.12 pg/mL	TGFA
CSB-E04726m	Mouse Transforming Growth factor $\beta$ 1,TGF- $\beta$ 1 ELISA kit	0.2 ng/mL	TGFB1
CSB-E06843p	Pig transforming growth factor $\beta$ 1(TGF- $\beta$ 1)ELISA Kit	0.195 ng/mL	TGFB1
CSB-E04725h	Human Transforming Growth factor $\beta$ 1,TGF- $\beta$ 1 ELISA kit	0.747 ng/mL	TGFB1
CSB-E04796c	Dog Transforming growth factor $\beta$ 1,TGF- $\beta$ 1 ELISA Kit	0.747 ng/ml	TGFB1
CSB-EL023446SH	Sheep Transforming growth factor beta-1(TGFB1) ELISA kit	3.9 ng/mL	TGFB1
CSB-E09875Ch	Chicken Transforming Growth factor $\beta$ 1,TGF- $\beta$ 1 ELISA kit	0.078 ng/mL	TGFB1
CSB-E14209B	Bovine transforming growth factors $\beta$ 2,TGF $\beta$ 2 ELISA Kit	6.25 ng/mL	TGFB2
CSB-E09785m	Mouse transforming growth factor $\beta$ 2,TGF $\beta$ 2 ELISA Kit	0.39 pg/mL	TGFB2
CSB-E12862m	Mouse Transforming Growth factor $\beta$ 3,TGF- $\beta$ 3 ELISA kit	31.25 pg/mL	TGFB3
CSB-E07000Rb	Rabbit Transforming Growth factor $\beta$ 1,TGF- $\beta$ 1 ELISA Kit	1.78 ng/mL	TGFB1
CSB-EL023453MO	Mouse Transforming growth factor beta receptor type 3(TGFBR3) ELISA kit	1.56 pg/mL	TGFBR3
CSB-E09821h	Human Toll-like receptor 9,TLR-9 ELISA kit	19.5 pg/mL	TLR9
CSB-E04836h	Human Triggering Receptor Expresses on Myeloid Cells-1,TREM-1 ELISA Kit	7.81 pg/mL	TREM1
CSB-EL025554MO	Mouse Mitochondrial brown fat uncoupling protein 1(UCP1) ELISA kit	1.17 pg/mL	UCP1
CSB-EL026287HU	Human 14-3-3 protein epsilon(YWHAE) ELISA kit	19.5 pg/mL	YWHAE
CSB-EL026289HU	Human 14-3-3 protein eta(YWHAH) ELISA kit	0.156 ng/mL	YWHAH
CSB-EL026293HU	Human 14-3-3 protein zeta/delta(YWHAZ) ELISA kit	0.156 ng/mL	YWHAZ