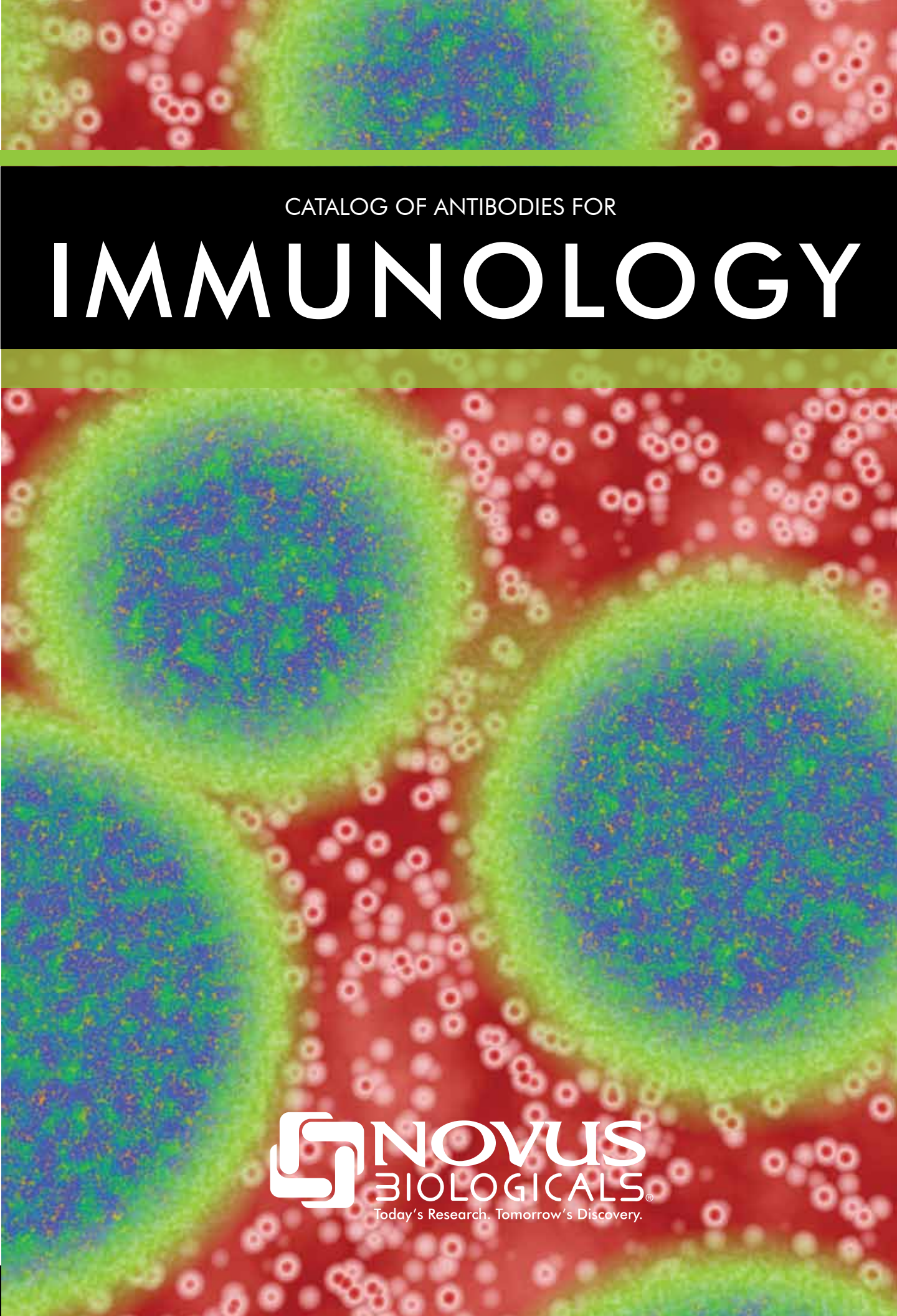

CATALOG OF ANTIBODIES FOR
IMMUNOLOGY
NOVUS BIOLOGICALS®
Today's Research. Tomorrow's Discovery.

Table of Contents

Application Key

B/N - Blocking/Neutralizing

ELISA - Enzyme-linked Immunosorbent Assay

FACS - Fluorescent Activated Cell Sorting

Func - Functional Assay

ICC - Immunocytochemistry

IF - Immunofluorescence

IHC - Immunohistochemistry

IHC-Fr - Immunohistochemistry Frozen

IHC-P - Immunohistochemistry Paraffin

IP - Immunoprecipitation

IVA - *In Vitro* Assay

PEP-ELISA - Peptide ELISA

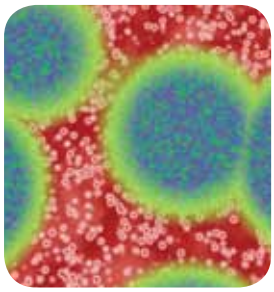
RI - Radioimmunodiffusion

RIA - Radioimmunoassay

WB - Western Blot

Reactivity Key

Bb - Baboon
Bv - Bovine
Ca - Canine
Eq - Equine
Fe - Feline
Gp - Guinea Pig
Hu - Human
Mk - Monkey
Mu - Mouse
Po - Porcine
Rb - Rabbit
Rt - Rat
Sh - Sheep

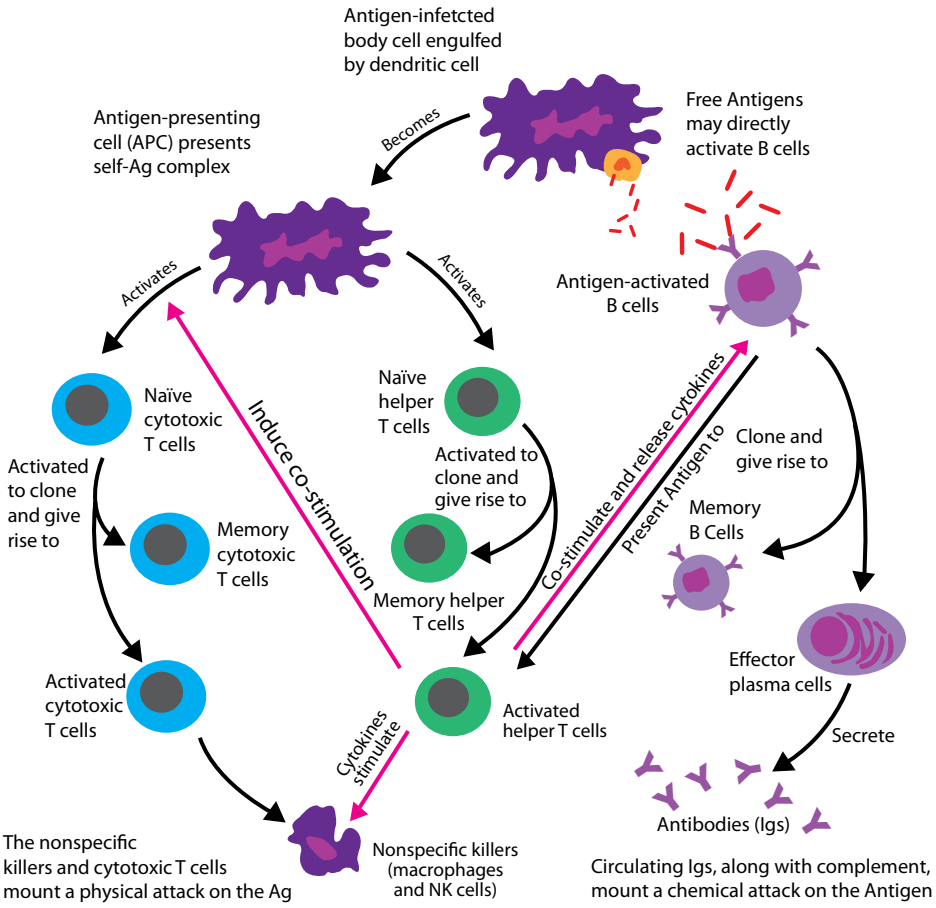


Cover Image: Virus Cells

Immunology Research

The immune system can be broken down into two distinct divisions, the innate or non-specific immune system and the specific or adaptive immune system. The innate immune system functions to control infections in a non-specific manner. The skin and mucous membranes act as physical barriers against pathogen invasion. Each of these tissues secretes a protective fluid which attacks certain invaders. The mucosa secretes saliva and lacrimal fluid, which contains lysozymes, and the skin produces sebum; these chemicals exhibit anti-microbial properties. In addition to these physical barriers, the body uses non-specific cellular defenses to clear infections once pathogens have entered the body. Phagocytes are able to detect surface markers expressed by bacteria in order to engulf and destroy them, while Natural Killer (NK) cells recognize virus-infected cells and destroy them by inducing cell lysis. Anti-microbial proteins prevent the spread of infection as well. Viral-infected cells produce Interferon which stimulates surrounding cells to produce anti-viral proteins. The complement cascade can either work with the adaptive immune system by triggering destruction of antibody tagged antigens, or it can function as part of the innate immune system by binding and directly destroying some bacteria. Complement activation enhances inflammatory response.

Following induction of the innate immune system, the body's adaptive immune system is activated by either the free antigens or by the presentation of phagocytozed antigens by antigen presenting cells (APCs). The APCs activate both the cellular and the humoral branches of the adaptive immune system by activating T and B cells, respectively. Activated T cells can differentiate along one of two pathways. They can give rise to cytotoxic T cells, which act in conjunction with NK cells and macrophages to physically attack the antigen, or they can develop into T helper cells, which act to regulate the immune response of both antibody producing B cells and cytotoxic T cells. Activated B cells differentiate in response to co-stimulation from T helper cells to become either memory B cells or plasma cells. The memory B cells are responsible for immunologic memory and allow for a rapid response upon reexposure to an antigen. The plasma cells are responsible for secretion of soluble antibodies to the specific antigen.



Innate Immunity

Innate immunity is the defense mechanism that attacks an infection at onset. It does not adapt to specific pathogens to provide long-lasting protection as the adaptive immune system does. Most infectious agents that penetrate the body's outer epithelial surfaces are quickly eliminated by the innate immune response preventing the appearance of disease symptoms. The word innate implies genetically determined mechanisms. Innate immunity functions in a two part mechanism. First, the pathogen is recognized by soluble proteins and cell-surface receptors. Serum proteins of the complement system are activated to covalently bind the pathogen. Next, effector cells (phagocytic white blood cells) are recruited to engulf the pathogen via endocytosis and to destroy it in the phagosome.

Cytokines

Cytokines are signaling proteins produced by various cells for use in cellular communication in order to regulate immunity, inflammation and hematopoiesis. They act by binding membrane receptors, which then activate second messengers in order to alter gene expression. Cytokines interact via autocrine or paracrine action, although some work by endocrine action as well.

Tumor Necrosis Factors

Tumor Necrosis Factors (TNFs) are a family of cytokines that trigger apoptosis. TNF alpha is mainly secreted by macrophages and causes apoptosis of certain tumor cells lines. It also can stimulate cell proliferation and differentiation under certain conditions. TNF alpha and TNF beta are closely related as they share the same receptors and have similar cellular actions.

Catalog#	Product	Host	Type	Application	Species
NB100-78163	TNF alpha (MAb11) [FITC]	Mouse	Monoclonal	FACS, ICC	Bb, Hu, Mk, Po
NBP1-05081	TNF alpha	Mouse	Monoclonal	ELISA	Hu
NB600-587	TNF alpha	Rabbit	Polyclonal	ELISA, IP, RI, WB, IHC, IHC-P	Hu, Mk
NB100-64741	TNF alpha (MP9-20A4)	Rat	Monoclonal	ELISA, FACS, IHC-Fr	Hu
NB200-445	TNF alpha (2C8)	Mouse	Monoclonal	ELISA, IHC-Fr, IHC-P	Hu
NB110-57620	TNF alpha (EP1085Y)	Rabbit	Monoclonal	WB	Hu
NB100-78165	TNF beta (359-238-8)	Mouse	Monoclonal	ELISA	Hu
NB100-78166	TNF beta (359-81-11)	Mouse	Monoclonal	FACS, ICC, IHC	Hu
NB100-78167	TNF beta (359-81-11) [Biotin]	Mouse	Monoclonal	ELISA, FACS, ICC	Hu
NB600-822	TNF beta	Rabbit	Polyclonal	ELISA, WB	Hu

TNF alpha Antibody
NBP1-19532

Immuno-histochemical analysis of human colon carcinoma tissue using NBP1-19532.

Species: Hu, Mu, Rt
Applications: IF, IHC-P

Novus Guarantee + Innovator's Reward™ Policy

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= 100% Support and Peace of Mind

Interleukins

Interleukins are a diverse group of cytokines. IL-1 and IL-6 are released by macrophages and work with TNF alpha to induce inflammation at the onset of infection. IL-2 is produced by activated T cells and primarily functions in the adaptive immune response. IL-3 is a hematopoietic factor that promotes growth and differentiation of blood cells. CD4 TH2 cells secrete IL-4, IL-10 and IL-13 which function in antibody production. IL-12 is released by various immune cells and activates NK cells.

Catalog#	Product	Host	Type	Application	Species
NBP1-02774	IL-1 alpha	Mouse	Monoclonal	ELISA, IHC-P, WB	Hu
NB110-57118	IL-1R1 (EP409Y)	Rabbit	Monoclonal	FACS, IP, WB	Hu, Mu, Rt
NB100-78216	IL-1 beta (JK1B-1)	Mouse	Monoclonal	ELISA, FACS, ICC	Hu
NB110-57112	IL-1 beta (EP407Y)	Rabbit	Monoclonal	WB	Hu
NB600-633	IL-1 beta	Rabbit	Polyclonal	ELISA, FACS, IHC-Fr, IHC-P, IP, RI, WB	Hu, Mk
NB600-1435	IL-2	Goat	Polyclonal	ELISA, WB	Mu
NBP1-06660	IL-2 (AP-MAB084)	Rat	Monoclonal	FACS, IHC-Fr, IP	Mu
NB600-564	IL-2 Receptor alpha (IL2R.1)	Mouse	Monoclonal	IHC-P	Hu
NB120-6411	IL-2 Receptor alpha (OX39)	Mouse	Monoclonal	FACS, IHC-Fr, IHC-P	Rt
NB100-94335	IL-3 (hIL3-E2)	Mouse	Monoclonal	ELISA, IP, WB	Hu
NB110-57120	IL-3RB (EP1037Y)	Rabbit	Monoclonal	IHC, WB	Hu
NB110-8389	IL-3 (2F2)	Mouse	Monoclonal	ELISA	Hu
H00003565-A01	IL-4	Mouse	Polyclonal	ELISA, WB	Hu
NB100-78173	IL-4 (11B11)	Rat	Monoclonal	ELISA, FACS, ICC, IHC, IP	Mu
NBP1-19749	IL-5	Rabbit	Polyclonal	WB	Hu, Mu, Rt
NB600-1131	IL-6	Rabbit	Polyclonal	ELISA, WB	Hu
NB600-967	IL-6 (MQ2-13A5)	Rat	Monoclonal	ELISA, FACS, IHC, WB	Hu
NBP1-02757	IL-6	Mouse	Monoclonal	ELISA, IHC-P, WB	Hu
H00003570-M01	IL-6R (2G6)	Mouse	Monoclonal	ELISA, WB	Hu
H00003574-B01	IL-7	Mouse	Polyclonal	ELISA, WB	Hu
NB110-85537	IL-7R alpha [Tyr449]	Rabbit	Polyclonal	ELISA, IHC, WB	Hu, Mu, Rt
NB110-57119	IL-8 (EP117Y)	Rabbit	Monoclonal	WB	Hu
H00003578-B02	IL-9	Mouse	Polyclonal	ELISA, WB	Hu
NB110-57114	IL-10 (EP1115Y)	Rabbit	Monoclonal	WB	Hu, Mu, Rt
NBP1-42356	IL-10 (JES5-2A5)	Rat	Monoclonal	B/N, ELISA, IP	Hu, Mu
H00003588-B01	IL10-R beta	Mouse	Polyclonal	ELISA, WB	Hu
H00003590-M01	IL-11R alpha (2D4-F4)	Mouse	Monoclonal	ELISA, WB	Hu
NBP1-19815	IL-11	Rabbit	Polyclonal	IHC-P	Hu, Mu, Rt
NB100-93409	IL-12 beta	Goat	Polyclonal	ELISA, WB	Mu, Rt
NB600-1443	IL-12	Goat	Polyclonal	ELISA, WB	Mu
NB600-1357	IL-12 (C17.8)	Rat	Monoclonal	ELISA, IHC-P, IP, WB	Mu
H00003596-M06	IL-13 (3H7)	Mouse	Monoclonal	ELISA, WB	Hu
NB100-2488	IL-13 (32116.11)	Mouse	Monoclonal	ELISA, WB	Hu
NB110-57115	IL-15 (EP433Y)	Rabbit	Monoclonal	WB	Hu
NB200-620	IL-15	Rabbit	Polyclonal	WB	Mu
NB100-2186	IL-16 (1F12D7)	Mouse	Monoclonal	ELISA, WB	Hu
NB110-57116	IL-17 (EP434Y)	Rabbit	Monoclonal	WB	Hu, Mu
NB200- 201	IL-18 Binding Protein	Rabbit	Polyclonal	WB	Hu

IL-1 beta Antibody NB600-633

Species: Hu, Mk
Applications: ELISA, FACS, IHC-Fr, IHC-P, IP, RI, WB

Western blot analysis on dog IL-1B using NB600-633.

IL-2 Antibody NB110-60926

Species: Hu
Applications: IHC

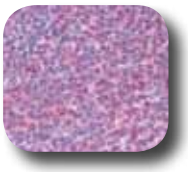
Staining of lymphocytes in PBMNC cultures after PMA and ionomycin stimulation using NB110-60926.

IL-3RB (EP1037Y) Antibody NB110-57120

Species: Hu
Applications: IHC, WB

Immuno-histochemical analysis of human lymphoma using NB110-57120.

IL-6 Antibody NBP1-02757



Species: Hu
Applications: ELISA, IHC-P, WB

Immuno-histochemical analysis of human tonsil using NBP1-02757.

IL-8 Antibody NB110-57119

Species: Hu
Applications: WB

Western blot analysis of recombinant IL-8 protein using NB110-57119.

IL-9 Antibody H00003578-B02

Species: Hu
Applications: ELISA, WB

Western Blot analysis in transfected 293T cell line using H00003578-B02.

IL-10 (EP1115Y) Antibody NB110-57114

Western blot analysis on recombinant protein using NB110-57114.

Species: Hu, Mu, Rt
Applications: WB

IL-12 beta Antibody NB100-93409

Western blot analysis of rat liver lysate using NB100-94309.

Species: Mu, Rt
Applications: ELISA, WB

Read more about IL-1's implication in Rhuematoid Arthritis on page 17.

IL-8

Interleukin 8 (IL-8), also known as CXCL8, is a chemotactic factor that recruits neutrophils from the blood to sites of infection in order to initiate the inflammatory response. IL-8 also recruits basophils and T cells, but not monocytes. Lung inflammation that is a characteristic of cystic fibrosis is thought to be triggered by overproduction of IL-8.

IL-8 (EP117Y) Antibody
NB110-57119

Western blot analysis on recombinant IL-8 protein using NB110-57119.

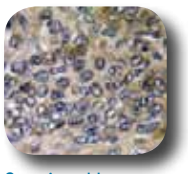
Species: Hu
Applications: WB

IL-8 (2A8) Antibody
H00003576-M22

Western blot of biologically active recombinant human IL-8 using H00003576-M22.

Species: Hu
Applications: ELISA, WB

IL-8 Antibody
NBP1-19757



Immuno-histochemical analysis of human lung carcinoma tissue using NBP1-19757

Species: Hu
Applications: IHC-P, WB

Interferons

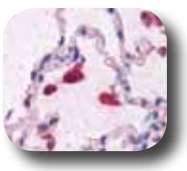
Interferons are glycoproteins produced by the immune system in response to the presence of double-stranded RNA, a sign of a viral infection. There are three primary types of interferons: interferon beta (IFN-B), interferon alpha (IFN-A) and interferon gamma (IFN-gamma). IFN-A and IFN-B are type I interferons that are structurally and functionally related. IFN-A and IFN-B inhibit virus replication in infected cells. They appear to compete with one another for binding to common cell surface receptors, whereas IFN-gamma binds to a distinct receptor called IFN-alphaR. IFN-B can also regulate the production of IFN-gamma. IFN-gamma stimulates the expression of MHCs on antigen-presenting cells.

IFNGR1 Antibody
NB100-92260

Immuno-histochemical analysis of human brain tissue using NB100-92260.

Species: Hu, Mu
Applications: ELISA, IHC-P

IFN-beta Antibody
NBP1-03004



Immuno-histochemical analysis of human lung using NBP1-03004.

Species: Hu, Mu
Applications: IHC-P, WB

IFN-gamma (EP1109Y) Antibody
NB110-57108

Western blot analysis on IFN-gamma recombinant protein using NB110-57108.

Species: Hu
Applications: WB

Chemokines

Chemokines are small proteins involved in the inflammatory response. They are a type of cytokine that attract leukocytes to infection sites by acting as chemoattractants. Chemokines interact with the targeted leukocyte via GPCRs. This interaction causes two effects: first, the leukocyte's adhesive properties change allowing movement from blood to tissue and secondly, the leukocyte's movement to the center of infection is driven via a chemokine gradient. Chemokines are divided into two major subfamilies, which are defined based on their pairs of cysteine residues. CC chemokines contain adjacent cysteine resides, where as CXC chemokines' cysteines are separated by a different amino acid.

MIP-1 alpha

Macrophage inflammatory protein-1 alpha (MIP-1 alpha), also known as CCL3, is involved in the acute inflammatory state. Chemokine receptors, CCR1, CCR2, CCR3 and CCR5 recognize the two isoforms of MIP-1 alpha in order to inhibit HIV infection. MIP-1 alpha is also capable of inhibiting the proliferation of hematopoietic stem cells *in vitro* and *in vivo*.

MIP-1 alpha (EP493Y) Antibody
NB100-79997

Western blot analysis on recombinant protein using NB100-79997.

Species: Hu
Applications: WB

MIP-1 beta

Macrophage inflammatory protein-1 beta (MIP-1 beta), also known as CCL4, promotes accumulation of lymphocyte, macrophages, monocytes and NK cells during inflammation via its chemotactic properties. MIP-1 plays a role in HIV-1 by blocking or down-regulating the receptor CCR5.

MIP-1 beta (EP521Y) Antibody
NB110-40755

Western blot analysis on recombinant protein using NB110-40755.

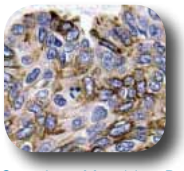
Species: Hu
Applications: WB

RANTES

RANTES, also known as CCL5, is a chemoattractant for blood monocytes, memory T helper cells and eosinophils. RANTES triggers the release of histamine from basophils and also activates eosinophils. Via binding to the chemokine receptors, CCR1, CCR3, CCR4 and CCR5, it acts to suppress HIV.

Catalog#	Product	Host	Type	Application	Species
NBP1-19769	RANTES	Rabbit	Polyclonal	IHC-P	Hu, Mu, Rt
NB600-1242	RANTES	Rabbit	Polyclonal	ELISA, WB	Hu
NB120-10394	RANTES (53405.111)	Rat	Monoclonal	ELISA, WB	Hu, Mu
H00006352-B01	RANTES	Mouse	Polyclonal	ELISA, WB	Hu
NBP1-45831	RANTES	Rabbit	Polyclonal	WB	Mu, Rt

RANTES Antibody
NBP1-19769



Immuno-histochemical analysis of human lung carcinoma tissue using NBP1-19769.

Species: Hu, Mu, Rt
Applications: IHC-P

Chemokine Receptors

Chemokine receptors are GPCRs that mediate the migration and activation of leukocytes. Four families of chemokine receptors have been identified that correspond with the chemokines to which they bind: CXC, CC, CX3C and XC. Recently, chemokine receptors have been shown to be implicated in several diseases including malaria, allergy, psoriasis and atherosclerosis. CCR4 and CCR5 have been shown to be implicated in HIV, as they are used to preferentially enter macrophages or T cells.

Additional Chemokine Antibodies are available on our website, novusbio.com.

CCR2

C-C chemokine receptor type 2 (CCR2) has been found to be a monocyte chemoattractant protein-specific receptor. CCR2 transduces these signals by increasing intracellular levels of calcium ions. It also functions as an alternative coreceptor with CD4 for HIV-1 infection. CCR2 is present in two isoforms and is expressed widely throughout the body.

CCR2 (E68) Antibody
NB110-55674

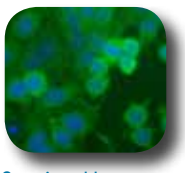
Immuno-histochemical analysis of human spleen using NB110-55674.

Species: Hu, Mu
Applications: FACS, ICC, IHC-P, IP

Featured CCR2 Antibodies
Also available conjugated to:

- Biotin
- DyLight 488
- DyLight 549
- DyLight 649
- HRP

CCR2 Antibody
NBP1-48337



Immuno-cytochemical analysis of CCR2 in HeLa cells using NBP1-48337.

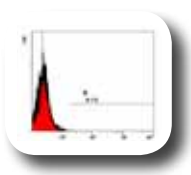
Species: Hu
Applications: FACS, ICC, WB

CCR2 Antibody
NBP1-48338

Immuno-cytochemical analysis of CCR2 in NIH/3T3 cells using NBP1-48338.

Species: Hu, Mu
Applications: FACS, ICC, WB

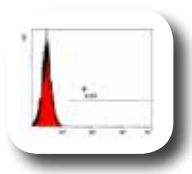
CCR2 Antibody
NBP1-48337



FACS testing of CCR2 in HeLa cells using NBP1-48337.

Species: Hu
Applications: FACS, ICC, WB

CCR2 Antibody
NBP1-48338



FACS analysis of CCR2 in NIH/3T3 cells using NBP1-48338.

Species: Hu, Mu
Applications: FACS, ICC, WB

CCR5

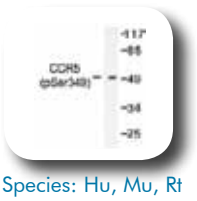
C-C chemokine receptor type 5 (CCR5), also known as CD195, is a receptor for various inflammatory chemokines, including MIP-1 alpha, MIP-1 beta and RANTES. CCR5 may play a role in the control of granulocytic lineage proliferation or differentiation. It also is a major coreceptor for human HIV infection.

CCR5 Antibody
NB100-714

Immuno-histochemical analysis on human peripheral blood leukocytes using NB100-714.

Species: Hu
Applications: ELISA, ICC, IHC-P, WB

CCR5 Antibody
NB100-92023



Western blot analysis of CCR5 on COS7 cell extracts using NB100-92023.

Species: Hu, Mu, Rt
Applications: ELISA, WB

CCR5 (E164) Antibody
NB110-55676

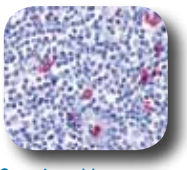
Western blot analysis on (1) Jurkat, (2) K562, and (3) Daudi cell lysates using NB110-55676.

Species: Hu, Mu
Applications: FACS, WB

[CCR5 NB100-531] Khurana, S., et al. Identification of a linear peptide recognized by monoclonal antibody 2D7 capable of generating CCR5-specific antibodies with human immunodeficiency virus-neutralizing activity. J. Virol. 2005 Jun; 79(11):6791-800.

Catalog#	Product	Host	Type	Application	Species
NB100-702	CCR1	Rabbit	Polyclonal	ELISA, ICC, IHC-P, WB	Hu, Mu
NB110-55674	CCR2 (E68)	Rabbit	Monoclonal	FACS, ICC, IHC-P, IP	Hu, Mu
NB100-701	CCR2	Goat	Polyclonal	ICC, IHC-P, WB	Mu
NB300-696	CXCR2	Rabbit	Polyclonal	IHC-Fr, IP, WB	Hu, Mu, Rt
NB100-720	CCR3	Goat	Polyclonal	ELISA, ICC, IHC, IHC-P, WB	Hu
NLS1374	CXCR3	Rabbit	Polyclonal	IHC-P	Hu
NB100-56404	CXCR3	Rabbit	Polyclonal	WB	Hu, Mu
NLS351	CCR4	Rabbit	Polyclonal	IHC-P	Hu
NB100-74396	CXCR4	Rabbit	Polyclonal	ICC, IF, IHC-P, WB	Hu, Mu
NB100-715	CXCR4	Goat	Polyclonal	ELISA, ICC, IHC-P, WB	Mu
NB100-531	CCR5	Rabbit	Polyclonal	ELISA, FACS, Func, IVA	Hu, Mk
NB100-78048	CCR5 (R-C10)	Mouse	Monoclonal	ELISA, FACS, ICC, IP, WB	Hu
NB100-78045	CCR5 (V14/2) [Biotin]	Mouse	Monoclonal	ELISA, FACS, IF	Hu
NLS1385	CXCR5	Rabbit	Polyclonal	IHC-P	Hu
NBP1-04271	CCR6 (4C6)	Mouse	Monoclonal	ELISA, WB	Hu
NLS1102	CXCR6	Rabbit	Polyclonal	IHC-P	Hu
NB110-55680	CCR7 (Y59)	Rabbit	Monoclonal	ICC, IHC-P, IP, WB	Hu, Mu, Rt
NB100-712	CCR7	Goat	Polyclonal	ELISA, FACS, ICC, IHC, WB	Hu, Mu, Mk, Bv
NB110-55677	CCR7 (E75)	Rabbit	Monoclonal	FACS, WB	Hu, Mu
NB110-55681	CCR8 (E76)	Rabbit	Monoclonal	ICC, WB	Hu, Mu
NB110-55682	CCR8 (E77)	Rabbit	Monoclonal	FACS, ICC, IP, WB	Hu, Rt
NB100-709	CCR8	Goat	Polyclonal	ELISA, ICC, IHC-P, WB	Mu
NB100-708	CCR9	Goat	Polyclonal	ELISA, FACS, ICC, IHC-P, WB	Mu
NB110-55683	CCR9 (E99)	Rabbit	Monoclonal	FACS, ICC, WB	Hu, Mu
NB100-707	CCR10/GPR2	Goat	Polyclonal	ELISA, ICC, IHC, WB	Hu
NB100-705	CCR11	Goat	Polyclonal	ELISA, ICC, IHC-P, WB	Hu, Mu
NB100-66126	CX3CL1	Rabbit	Polyclonal	WB	Hu

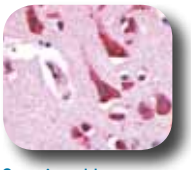
CXCR3 Antibody
NLS1374



Species: Hu
Applications: IHC-P

Immuno-histochemical analysis of human tonsil using NLS1374.

CXCR4 Antibody
NLS1380



Species: Hu
Applications: IHC-P

Immuno-histochemical analysis of human brain neurons and glia using NLS1380.

CXCR6 Antibody
NLS1102

Species: Hu
Applications: IHC-P

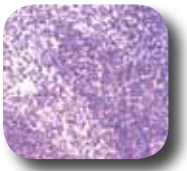
Immuno-histochemical analysis of tonsil (interfollicular zone) using NLS1102.

CCR7 Antibody
NB100-712

Species: Bv, Hu, Mk, Mu
Applications: ELISA, FACS, ICC, IHC, WB

Immuno-histochemical analysis mouse spleen using NB100-712.

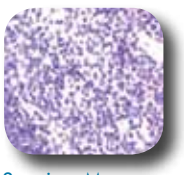
CCR8 Antibody
NB100-709



Immuno-histochemical analysis of mouse spleen using NB100-709.

Species: Mu
Applications: ELISA, ICC, IHC-P, WB

CCR9 Antibody
NB100-708



Immuno-histochemical analysis of mouse spleen using NB100-708.

Species: Mu
Applications: ELISA, FACS, ICC, IHC-P, WB

CX3CL1 Antibody
NB100-55762

Immuno-histochemical analysis of human heart tissue using NB100-55762.

Species: Hu, Mu, Rt
Applications: IHC-P, WB

Toll-Like Receptors

Receptors on the surface of macrophages, including Toll-Like Receptors (TLRs), sense pathogen components and tell the macrophage to produce and secrete cytokines. These cytokines then recruit other cells to defend the infected tissue. Many TLR families exist, each with varying specificity for microbial products, however TLR4 is the most thoroughly researched of the receptor family. The only TLR known to directly bind products is TLR5, which binds bacterial flagellin. All TLRs trigger an intercellular signaling pathway that leads to the translocation of the transcription factor nuclear factor kappa B (NFκB) from the cytoplasm to the nucleus. Once present in the nucleus, NFκB directs the transcription of genes for inflammatory cytokines.

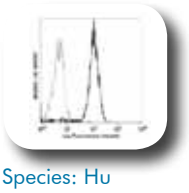
Catalog#	Product	Host	Type	Application	Species
NBP1-02993	TLR1	Rabbit	Polyclonal	IHC-P, WB	Hu, Mu
NB120-14275	TLR2	Chicken	Polyclonal	WB	Hu, Mu, Rt
NB200-580	TLR2 (TL2.1)	Mouse	Monoclonal	FACS, IHC, IP, WB	Hu
NB100-56058	TLR2 (TL2.1) [FITC]	Mouse	Monoclonal	FACS	Ca, Hu
NB120-1655	TLR2	Goat	Polyclonal	ELISA, ICC, IHC-P	Hu
NB200-536	TLR2	Rabbit	Polyclonal	WB	Hu, Mu, Rt, Mk
NB100-56720	TLR2	Rabbit	Polyclonal	IHC-P, IHC, WB	Hu, Mu
NB100-56056	TLR2 (TL2.1) [Biotin]	Mouse	Monoclonal	FACS, IP	Hu
NB100-94371	TLR2	Rabbit	Polyclonal	WB	Hu, Mu
NBP1-04929	TLR3	Chicken	Polyclonal	WB	Hu, Mu, Rt
NB110-93591	TLR3	Rabbit	Polyclonal	WB	Mu, Rt, Eq, Bv
NB100-77956	TLR3 (TLR-104)	Mouse	Monoclonal	FACS, ICC, WB	Hu
NB600-707	TLR4 (HTA125)	Mouse	Monoclonal	FACS, Func, IP, WB	Ca, Hu, Gp, Mk, Po
NB600-728	TLR4 (HTA125) [PE]	Mouse	Monoclonal	FACS	Ca, Gp, Hu, Mk, Po
NB100-56566	TLR4 (76B357.1)	Mouse	Monoclonal	FACS, WB	Bv, Hu, Mk, Mu, Po, Rt
NB100-56581	TLR4	Rabbit	Polyclonal	ICC, IHC, WB	Hu, Mu
NB100-66353	TLR5	Rabbit	Polyclonal	IHC-P, WB	Hu, Mu, Rt
NB200-571	TLR5 (85B152.5) [FITC]	Mouse	Monoclonal	FACS, WB	Hu, Mu
NBP1-02709	TLR6	Rabbit	Polyclonal	IHC-P, WB	Hu
H00010333-M14	TLR6 (1E5)	Mouse	Monoclonal	ELISA	Hu
NBP1-04349	TLR7 (4F4)	Mouse	Monoclonal	ELISA, WB	Hu
NBP1-04930	TLR7	Chicken	Polyclonal	WB	Hu, Mu, Rt
NB100-94377	TLR7	Rabbit	Polyclonal	ICC, IHC-P, WB	Hu, Mu
H00051284-M07	TLR7 (4G6)	Mouse	Monoclonal	ELISA, WB	Hu
NB100-56588	TLR7	Rabbit	Polyclonal	FACS, IHC, IHC-Fr	Hu, Mu
NB100-86982	TLR7	Rabbit	Polyclonal	ELISA, IHC, WB	Hu, Mu
NB110-10920	TLR8 (44C143)	Mouse	Monoclonal	FACS, WB	Hu
NB110-87039	TLR9	Rabbit	Polyclonal	ELISA, IHC, WB	Hu, Mu, Rt
NBP1-03024	TLR9	Rabbit	Polyclonal	IHC-P, WB	Hu, Mu
H00054106-M03	TLR9 (1E8)	Mouse	Monoclonal	ELISA, IF, WB	Hu
NBP1-04931	TLR9 isoform A	Chicken	Polyclonal	WB	Hu
NB100-80840	TLR10	Rabbit	Polyclonal	IHC-P, WB	Hu
NB110-86981	TLR11	Rabbit	Polyclonal	ELISA, IHC, WB	Hu
NB100-56742	TLR11	Rabbit	Polyclonal	FACS, WB	Mu, Rt
NB100-56189	TLR13	Rabbit	Polyclonal	ELISA	Mu, Rt

TLR2 Antibody NB120-1655

Species: Hu
Applications: ELISA, ICC, IHC-P

Immunohistochemical analysis of human spleen using NB120-1655.

TLR2 (TL2.1) Antibody NB200-580



Species: Hu
Applications: FACS, IHC, IP, WB

Flow cytometric analysis of human peripheral blood monocytes stained using NB200-580.

TLR4 (76B357.1) Antibody NB100-56566

Species: Bv, Hu, Mk, Mu, Po, Rt
Applications: FACS, WB

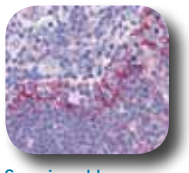
Western blot analysis of human mouse and rat intestine lysate using NB100-56566.

TLR5 Antibody NBP1-32352

Species: Hu
Applications: WB

Western blot analysis of TLR5 on H1299 whole cell lysate using NBP1-32352.

TLR6 Antibody NBP1-02709



Species: Hu
Applications: IHC-P, WB

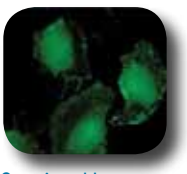
Staining of Formalin-Fixed Paraffin-Embedded (FFPE) human thymus using NBP1-02709.

TLR7 (4G6) Antibody H00051284-M07

Species: Hu
Applications: ELISA, WB

Western blot analysis on Daoy cell line using H00051284-M07.

TLR9 (1E8) Antibody H00054106-M03



Immuno-fluorescence of HeLa cells using H00054106-M03.

Species: Hu
Applications: ELISA, IF, WB

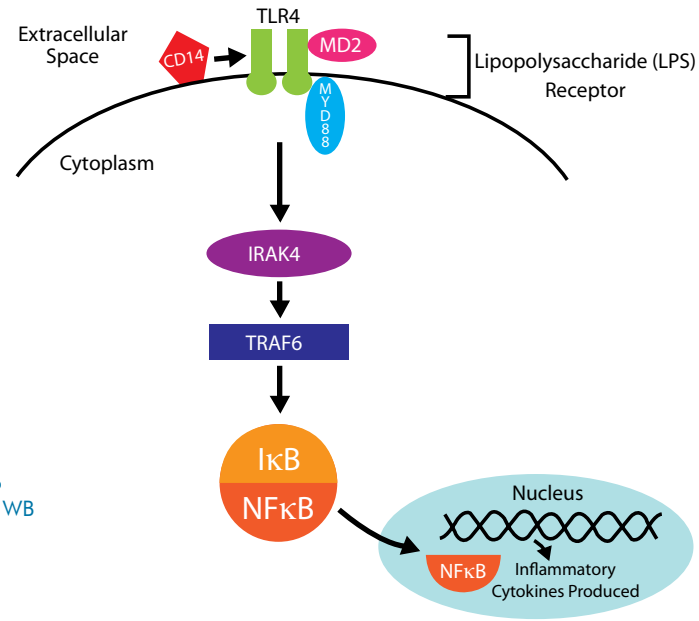
TLR7 (2F6) Antibody H00051284-M08

Western blot analysis of TLR7 expression in human ovary cancer using H00051284-M01.

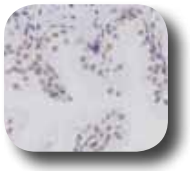
Species: Hu
Applications: ELISA, WB

TLR4

Toll-Like Receptor 4 (TLR4) forms one part of the lipopolysaccharide (LPS) receptor, a multi-protein complex that detects LPS, a major cell-surface component of Gram-negative bacteria and the major endotoxin responsible for septic shock.



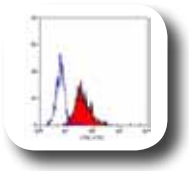
TLR4 Antibody
NB100-56581



Species: Hu, Mu
Applications: ICC, IHC, WB

Immuno-histochemical analysis of normal prostate sections using NB100-56581.

TLR4 (HTA125) Antibody
NB600-707



Species: Ca, Gp, Hu, Mk, Po
Applications: FACS, Func, IP, WB

Flow cytometric analysis of human peripheral blood monocytes using NB600-707.

CD14

CD14 binds LPS after it is released from bacterial surfaces and cooperates with MD2 and TLR4 to mediate the immune response. This pathway eventually leads to NFκB activation, cytokine secretion and the inflammatory response. CD14 is expressed strongly on the surface of monocytes and weakly on the surface of granulocytes. It is also expressed by most tissue macrophages.

MYD88

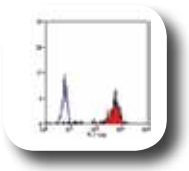
Myeloid differentiation marker 88 (MYD88) is an adapter molecule for the Toll-Like 1 receptor and is involved in the inflammatory response. MYD88 associates with and recruits IRAK to the IL-1 receptor complex, which leads to further activation of NFκB.

CD14 Antibody
NB100-2807

Western blot analysis of human lymph node lysate using NB100-2807.

Species: Hu
Applications: IHC, PEP-ELISA, WB

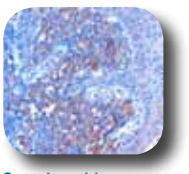
CD14 (T) [FITC] Antibody
NB100-63421



Staining of human peripheral blood monocytes probed using NB100-63421.

Species: Hu
Applications: FACS

MyD88 Antibody
NB300-946



Immuno-histochemical analysis of human tonsil using NB300-946.

Species: Hu
Applications: IHC-P, PEP-ELISA, WB

IRAK4

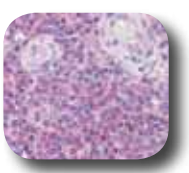
Interleukin-1 receptor associated kinase 4 (IRAK4) phosphorylates IRAK1 and overexpression leads to activation of NFκB. Individuals that lack IRAK4 are unable to initiate a proper immune response to viruses and bacteria.

IRAK4 Antibody
NB100-1527

Western blot analysis of Hela lysate using NB100-1527.

Species: Hu, Mu, Mk
Applications: PEP-ELISA, WB

IRAK4 Antibody
NBP1-02628



Immuno-histochemical analysis of human spleen using NBP1-02628.

Species: Hu
Applications: ICC, IHC-P, WB

IRAK4 (2D3) Antibody
H00051135-M04

Immuno-histochemical analysis of human testis using H00051135-M04.

Species: Hu
Applications: ELISA, IHC-P, WB

Adaptive Immunity

The unique function of the adaptive immune response provides the body with the ability to defend itself against specific invaders. Through complex mechanisms of antigen recognition, the body can ward off infection by attacking only specific pathogens while leaving the surrounding tissues alone. The body produces countless types of immunoglobulins and T cell receptors in response to infection. These remain latent in the system for many years after initial infection, thus allowing the body to effectively defeat diseases in the event of subsequent reexposure.

B Cells

B cells produce soluble immunoglobulins that recognize specific antigens. Upon binding to their target, these tags allow for the recruitment of phagocytes and the destruction of the pathogen. Immunoglobulins are capable of binding an intact pathogen in extracellular space, specifically targeting carbohydrate or amino acid groups on the surface of the invading molecule.

CD4 TH2 Helper Cells

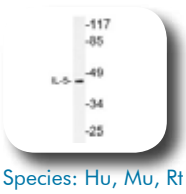
These cell types perform a critical role in the activation of B cells. Without co-stimulation, there is often not enough signal strength to cause the naïve B cells to differentiate. Helper/effector T cells use cytokines and direct interaction with B cells to promote B cell proliferation.

IL-4 (EPR1118Y) Antibody
NB100-79978

Western blot analysis of human tonsil lysate using NB100-79978.

Species: Hu
Applications: ICC, WB

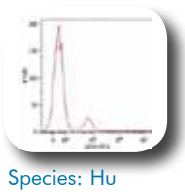
IL-5 Antibody
NBP1-19749



Western blot analysis of extracts from HT-29 cells using NBP1-19749.

Species: Hu, Mu, Rt
Applications: WB

CD40 (HI40a) Antibody
NB500-548



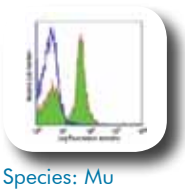
Surface staining of human peripheral blood cells using NB500-548.

Species: Hu
Applications: FACS

B Cell Coreceptors

Another important part of B cell activation is the B cell coreceptor, which aids in binding the antigen and aligning both the receptor and coreceptor. This alignment increases the relative proximity of cytoplasmic tyrosine kinases with CD19, which upon phosphorylation begins to mobilize internal signaling factors.

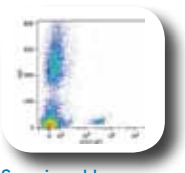
CD19 (MB19-1) Antibody
NB100-77382



C57BL/6 mouse splenocytes stained with NB100-77382.

Species: Mu
Applications: FACS, IP

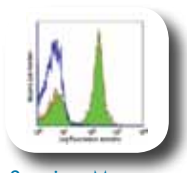
CD19 (LT19) Antibody
NB500-338



Surface staining of human peripheral blood cells using NB500-338.

Species: Hu
Applications: FACS, IP

CD19 (6D5) Antibody
NB100-77600



C57BL/6 mouse splenocytes stained with NB100-77600.

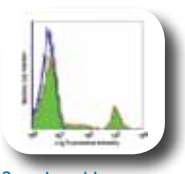
Species: Mu
Applications: FACS, IP, WB

CD19 (LE-CD19) Antibody
NB100-65672

Immuno-histochemical analysis of human tonsil using NB100-65672.

Species: Hu
Applications: ELISA, FACS, IHC-P

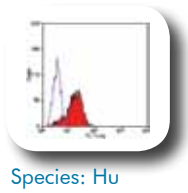
CD21 (LT21) Antibody
NB100-77958



Human peripheral blood lymphocytes stained with NB100-77958.

Species: Hu
Applications: FACS

TAPA1/CD81 (1D6) Antibody
NB100-65805



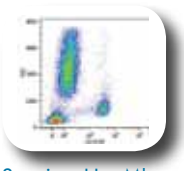
Staining of human peripheral blood lymphocytes using NB100-65805.

Species: Hu
Applications: FACS, IHC-P, IP

TI Antigens

Thymus-independent (TI) antigens are capable of binding B cell receptors and activating naïve B cells without the assistance of CD4 T cells. These antigens are also capable of binding other receptors on the B cell surface, such as TLRs, to activate B cell proliferation.

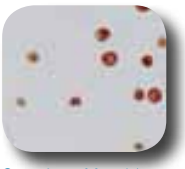
CD14 (MEM-15) Antibody
NB500-444



Surface staining of human peripheral blood cells using NB500-444.

Species: Hu, Mk
Applications: ELISA, FACS, IP, WB

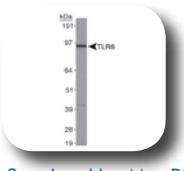
TLR4 Antibody
NB100-56581



Immuno-histochemical analysis of Ramos using NB100-56581.

Species: Hu, Mu
Applications: ICC, IHC, WB

TLR6 Antibody
NB110-93544



Western blot analysis on Jurkat whole cell extract using NB110-93544.

Species: Hu, Mu, Rt, Mk, Sh
Applications: WB

[TLR4 NB100-56581] Barajon I, et al. Toll-like receptors 3, 4, and 7 are expressed in the enteric nervous system and dorsal root ganglia. J Histochem Cytochem. 2009 Nov;57(11):1013-23. [PMID: 19546475]

Immunoglobulin-Gene Rearrangement

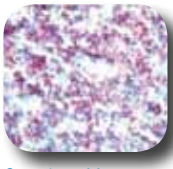
The numerous steps involved in the rearrangement of immunoglobulin genes are affected by changes in production of certain protein products that regulate successful development of B cells. The resulting rearrangements in immunoglobulin genes allow for the diverse production of immunoglobulins.

BTK (EP420Y) [phospho Tyr223] Antibody
NB100-79907

Western blot analysis on Ramos cell lysates using NB100-79907.

Species: Hu
Applications: IP, WB

TdT (SPM149) Antibody
NB120-15242



Immuno-histochemical analysis of human thymus using NB120-15242.

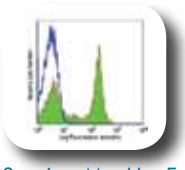
Species: Hu
Applications: IHC-P

VPREB3 (4H8) Antibody
H00029802-M08

Western blot analysis on transfected 293T cell line using H99929802-M08.

Species: Hu
Applications: ELISA, WB

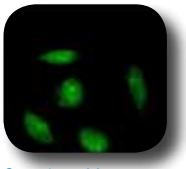
CD45R (RA3-6B2) Antibody
NB100-77420



C57BL/6 mouse splenocytes stained with NB100-77420.

Species: Mu, Hu, Fe
Applications: FACS, IHC, IP

RAG2 Antibody
H00005897-B01P



Immuno-fluorescent analysis of HeLa cells using H00005897-B01P.

Species: Hu
Applications: ELISA, IF, WB

HELIOS Antibody
H00022807-B01P

Immuno-fluorescent analysis of HeLa cells using H00022807-B01P.

Species: Hu
Applications: ELISA, IF, WB

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T Cells

These lymphocytes are an important part of the adaptive immune system. They are functionally different from B cells because they bind short peptides that have been assembled in a MHC molecule. This response to antigen processing makes T cells antigen-specific. Unlike B cells that produce soluble antibodies, T cells have a more diverse role which often includes interaction with other cell types.

T Cell Receptors

T Cell Receptors (TCRs) are membrane-bound glycoprotein complexes generally found on the surface of T cells. They are similar to a single antigen-binding portion of immunoglobulins formed in B cells.

TCR alpha/beta (H57-597) [FITC] Antibody
NBP1-28061

Flow cytometric analysis of BALB/C splenocytes using NBP1-28061.

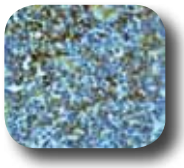
Species: Mu
Applications: FACS, IHC-Fr, IHC-P, IP, IVA

CD4 Antibody
NBP1-19371

Immuno-histochemical analysis of human brain tissue using NBP1-19371.

Species: Hu, Mu, Rt
Applications: FACS, IF, IHC-P, WB

CD8 alpha (EP1150Y) Antibody
NB110-55706



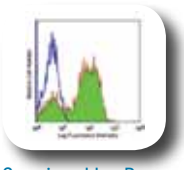
Immuno-histochemical analysis of human tissues using NB110-55706.

Species: Hu
Applications: FACS, ICC, IHC, WB

Adhesion Molecules

The movement of naïve T cells into secondary lymphoid tissue requires interaction of adhesion molecules on the surface of the T cells with adhesion molecules on the surface of endothelial cells. Molecules, such as selectins and vascular addressins, aid in homing of the T cells, while integrins strengthen the bond once the T cell and endothelium have come into contact.

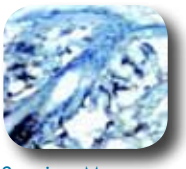
L-selectin (DREG-56) [FITC] Antibody
NB100-77803



Human peripheral blood lymphocytes stained using NB100-77803.

Species: Hu, Bv
Applications: FACS

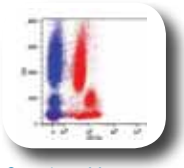
CD34 (MEC 14.7) Antibody
NB600-1071



Immuno-cytochemical analysis of murine hair follicles using NB600-1071.

Species: Mu
Applications: FACS, ICC, IF, IHC-Fr, IHC-P, IP, WB

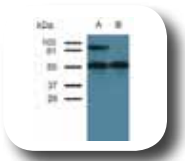
CD11 alpha (MEM-25) Antibody
NB500-328



Surface staining of human peripheral blood cells using NB500-328.

Species: Hu
Applications: FACS, IP

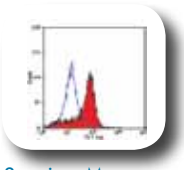
ICAM1 (MEM-111) Antibody
NB500-318



Western blot analysis of CD54 expression in activated (A) and non-activated (B) Huvec cells using NB500-318.

Species: Bv, Hu, Rt
Applications: ELISA, IHC-P, WB

ICAM2 (mIC2/4 (3C4)) Antibody
NB100-65945



Staining of mouse peripheral blood lymphocytes using NB100-65945.

Species: Mu
Applications: FACS, Func, IP

CD2 Antibody
H00000914-B02

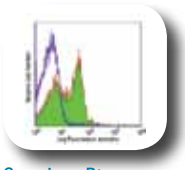
Immuno-histochemical analysis of human lymph node using H00000914-B02.

Species: Hu
Applications: ELISA, IHC-P, WB

Activating Proteins

Activation of naïve T cells requires a co-stimulatory signal from an antigen-presenting cell (APC). Expression of the required activation molecules only occurs in the event of an infection which activates the innate immune system causing upregulation of the B7 genes.

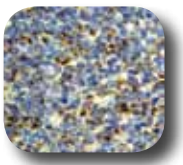
CD28 (JJ319) Antibody
NB100-77718



LOU rat splenocytes stained using NB100-77718.

Species: Rt
Applications: FACS, IP

CD80 (EP1155Y) Antibody
NB110-55564



Immuno-histochemical analysis of human tonsil using NB110-55564.

Species: Hu, Mu, Rt
Applications: FACS, ICC, IHC, WB

CD86 (EP1158Y) Antibody
NB110-55488

Immuno-histochemical analysis of human tonsil using NB110-55488.

Species: Hu, Mu, Rt
Applications: FACS, ICC, IHC, IP, WB

Gene Transcription

Upon antigen activation of T cell signals, by both T cell receptors and co-receptors. These function to alter the transcription of genes that in turn increase T cell proliferation.

LCK (Y123) Antibody
NB110-57284

Immuno-histochemical analysis of human lymphoma using NB110-57284.

Species: Hu
Applications: FACS, ICC, IHC, IP, WB

NFAT4 Antibody
NB100-92190

Western Blot analysis of HeLa cells using NB100-92190.

Species: Hu, Mu
Applications: ELISA, IHC-P, WB

IL-2 Antibody
NB110-60926

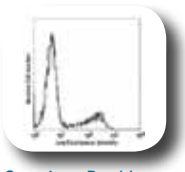
Staining of lymphocytes in human peripheral blood PBMNC cultures after PMA and ionomycin stimulation using NB110-60926.

Species: Hu
Applications: IHC

Cytotoxic T Cells

Cytotoxic T cells function to induce apoptosis of infected cells. This type of programmed cell death ensures that pathogen production is halted and that infectious molecules are not released back into the bloodstream.

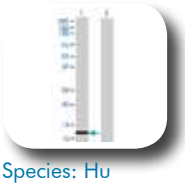
Perforin (dG9) Antibody
NB100-77862



Whole blood lymphocytes stained intracellularly using NB100-77862.

Species: Bv, Hu
Applications: FACS, IF, IHC, IP

Granulysin Antibody
H00010578-B01



Western Blot analysis of transfected 293T cell line (Lane 1) using H00010578-B01. Lane 2 is a non-transfected lysate.

Species: Hu
Applications: ELISA, WB

Fas Ligand Antibody
NB120-21233

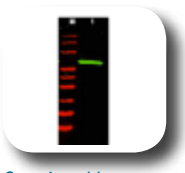
Immuno-histochemical analysis of human prostate stained using NB120-21233.

Species: Hu, Mu, Rt
Applications: IHC-P

CD4 T Cells

When activated, CD4 T cells acquire helper functions. These functions range from production of soluble cytokines to direct interaction of surface molecules that activate other types of cells. CD4 helper cells can differentiate into either TH1 or TH2 cells. TH1 cells play an important role in macrophage activation and facilitate the production of opsonizing antibodies. TH2 cell are mostly necessary for B cell differentiation and for the formation of neutralizing antibodies. TH2 cells also serve to regulate a TH1 response which can damage surrounding tissues.

IL-6 Antibody
NB600-1131



Immunoblot analysis of IL-6-GST fusion protein using NB600-1131.

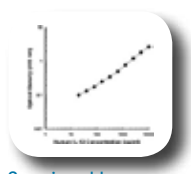
Species: Hu
Applications: ELISA, WB

IL-10 (EP1115Y) Antibody
NB110-57114

Western blot analysis of recombinant protein using NB110-57114.

Species: Hu, Mu, Rt
Applications: WB

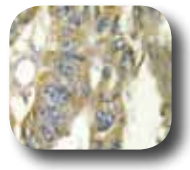
IL-13 [Biotin] Antibody
NB100-78150



Sandwich ELISA using NB100-78150 as the detection antibody.

Species: Hu
Applications: ELISA

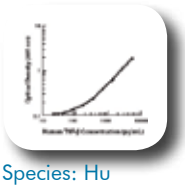
TNF alpha Antibody
NBP1-19532



Immuno-histochemical analysis of human colon carcinoma tissue using NBP1-19532.

Species: Hu, Mu, Rt
Applications: IF, IHC-P

TNF beta (359-238-8) Antibody
NB100-78165



Sandwich ELISA of NB100-78165 paired with NB100-78167.

Species: Hu
Applications: ELISA

TNF beta Antibody
H00004049-D01P

Western Blot analysis in transfected 293T cell line (Lane 1) using H00004049-D01P. Lane 2 is a non-transfected lysate.

Species: Hu
Applications: ELISA, WB

MHCs

Major histocompatibility complex (MHC) molecules are incredibly important to ensure that the appropriate type of T cell is activated in response to invasion by a foreign pathogen. There are two classes of MHC molecules: MHC class I, which present intracellular antigens to CD8 T cells, and MHC class II, which present extracellular antigens to CD4 cells.

MHC Class I

HLA-A Antibody
H00003105-B01P

Western blot analysis on human spleen using H00003105-B01P.

Species: Hu
Applications: ELISA, FACS, WB

HLA-B Antibody
H00003106-B01P

Western blot analysis on human spleen using H00003106-B01P.

Species: Hu
Applications: ELISA, WB

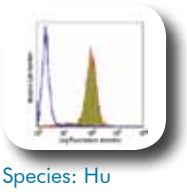
HLA-C Antibody
H00003107-B01P

Western blot analysis on transfected 293T cell line (Lane 1) using H00003107-B01P. Lane 2 is a non-transfeceted lysate.

Species: Hu
Applications: ELISA, WB

MHC Class II

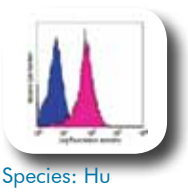
Integrin alpha V (NKI-M9) Antibody
NB100-78105



Human melanoma cell line M21 stained using NB100-78105.

Species: Hu
Applications: ELISA, FACS, IHC-Fr, IP

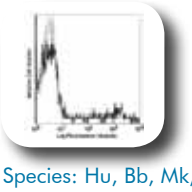
Integrin beta 4 (58XB4) Antibody
NB100-78102



Human colon carcinoma cell line (HT29) stained using NB100-78102.

Species: Hu
Applications: ELISA, FACS, IHC-Fr, IP

HLA-DR (L243) Antibody
NB100-77855



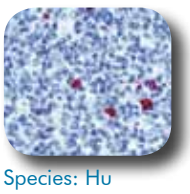
Human peripheral blood lymphocytes stained using NB100-77855.

Species: Hu, Bb, Mk, Ca
Applications: FACS, IHC-Fr, IP, WB

Immunoglobulins

The vast number of antibodies that can be produced is the direct result of gene rearrangement in the formation of immunoglobulins. After V(D)J recombination, alternative splicing allows for the formation of IgM and IgD antibodies. These immunoglobulins are the only isotypes present on naïve B cells. Once the B cell encounters an antigen, the other isotypes (IgA, IgE, IgG) can be produced. Immunoglobulins can be either membrane-bound acting as the B cell receptor for antigens, or soluble, thus permitting secretion to bind antigens and facilitate the destruction of pathogens.

IgM Antibody
NB120-17150



Immuno-histochemical analysis of human tonsil using NB120-17150.

Species: Hu
Applications: IHC-P

IgG Antibody
NB120-2410

Immuno-histochemical analysis of human tonsil stained using NB120-2410.

Species: Hu
Applications: IHC-Fr, IHC-P

Other Available Immunoglobins

IgA • NB110-8345
IgD • NB120-17184
IgE • NB110-55357
Kappa light chain • NB500-331
Lambda light chain • NB200-446

Abnova, Acris, biosensis, Innova, SDIX

Novus distributes for these companies:

Abnova · Acris Antibodies · biosensis · Innova Biosciences · sdix

CD Cell Markers

Clusters of Differentiation (CD) are a series of surface proteins on leukocytes that serve to differentiate the many types of white blood cells. CD proteins serve as receptors and ligands; important examples include CD4 and CD8 on T lymphocytes which serve to regulate the adaptive immune response. Some CD proteins regulate cell signaling, while others ensure cell adhesion, an important aspect of adaptive immunity.

Catalog#	Product	Host	Type	Application	Species
NB100-65719	CD1a (O10)	Mouse	Monoclonal	IHC-Fr, IHC-P	Hu
NB120-8089	CD2 (MEM-65)	Mouse	Monoclonal	FACS, IP	Hu
NB100-1526	CD2BP2	Goat	Polyclonal	PEP-ELISA, WB	Hu
NB100-2000	CD3 epsilon	Rabbit	Polyclonal	ELISA, IHC-Fr, IHC-P, WB	Hu, Mu, Rt
NB110-55699	CD3 zeta (EP286Y)	Rabbit	Monoclonal	FACS, ICC, WB	Hu
NB600-729	CD3 zeta (G3)	Mouse	Monoclonal	ELISA, FACS, IHC, IP, WB	Hu, Mu
NBP1-19371	CD4	Rabbit	Polyclonal	FACS, IF, IHC, IHC-P, WB	Hu, Mu, Rt
NB600-1440	CD4 (BC/1F6)	Mouse	Monoclonal	IHC-Fr, IHC-P	Hu, Mk
NB110-97869	CD4 (AP-MAB0707)	Rat	Monoclonal	FACS, IHC-P	Mu
NB600-1063	CD8 alpha (IBL-3/25)	Rat	Monoclonal	FACS, IHC-Fr, IP	Mu
NB110-55706	CD8 alpha (EP1150Y)	Rabbit	Monoclonal	FACS, ICC, IHC, WB	Hu
NB120-17135	CD10 (56C6)	Mouse	Monoclonal	IHC-P, IHC-Fr	Hu
NB100-2623	CD11 (24)	Mouse	Monoclonal	FACS, IP, RIA	Hu
NB500-635	CD11a (MEM-25) [PE]	Mouse	Monoclonal	FACS	Hu
NB110-89474	CD11b	Rabbit	Polyclonal	ICC, IF, WB	Bv, Hu, Mu, Rt
NB600-1327	CD11b (M1/70.15)	Rat	Monoclonal	FACS, IHC-Fr, IHC-P, IP	Hu, Mu, Rb
NB110-40766	CD11b/c	Rabbit	Polyclonal	FACS, ICC, IF, IHC-P, WB	Hu, Mu
NB100-2807	CD14	Goat	Polyclonal	IHC, PEP-ELISA, WB	Hu
NBP1-28441	CD15 (28)	Mouse	Monoclonal	FACS, IHC-Fr, IP	Hu
NB500-378	CD16 (MEM-154)	Mouse	Monoclonal	B/N, FACS, IP, WB	Hu
NB120-1902	CD17 (MEM-74)	Mouse	Monoclonal	FACS	Hu
NB500-495	CD18 (IVA35)	Mouse	Monoclonal	FACS, IP	Bv
NB600-1114	CD19 (LT19)	Mouse	Monoclonal	FACS, IHC-Fr, IP	Hu
NB110-55685	CD20 (EP459Y)	Rabbit	Monoclonal	FACS, IHC, IP, WB	Hu, Mu
NB200-573	CD21 (21B9)	Mouse	Monoclonal	FACS, WB	Hu
NB100-61658	CD26	Goat	Polyclonal	ELISA, WB	Ca, Hu, Mu, Rt
NB100-93558	CD28	Rabbit	Polyclonal	WB	Hu
NB110-55700	CD44 (EPR1013Y)	Rabbit	Monoclonal	FACS, ICC, IHC, WB	Hu
NB100-2681	CD90 / Thy1 (aTHy-1A1)	Mouse	Monoclonal	FACS, IP	Hu
NB500-452	CD105 (MEM-226)	Mouse	Monoclonal	FACS, IP, WB	Hu
NB500-615	CD108 (MEM-150) [FITC]	Mouse	Monoclonal	FACS	Hu
NB120-956	CD117/c-Kit	Rabbit	Polyclonal	IHC-P, IHC-Fr	Hu
NB120-11461	CD130 (B-R3) [FITC]	Mouse	Monoclonal	FACS	Hu
NB500-340	CD162 (TB5)	Mouse	Monoclonal	FACS	Hu
NB120-18275	IL2 Receptor alpha (MEM-181) [FITC]	Mouse	Monoclonal	FACS	Hu
NB100-79986	Lck [Tyr505] (EP2158Y)	Rabbit	Monoclonal	WB	Hu, Mu
NB100-57857	Lymphocyte Activation Gene 3	Goat	Polyclonal	ELISA, WB	Hu
NB100-1831	SSEA1 (MC-480)	Mouse	Monoclonal	FACS, ICC, IF	Hu, Mu
NB100-2433	TNFRSF14	Goat	Polyclonal	PEP-ELISA, WB	Hu
NB600-761	TNFSF4 (MRC OX89)	Rat	Monoclonal	FACS	Mu
NB110-57654	ZAP70 (YE291)	Rabbit	Monoclonal	FACS, ICC, IHC, IP, WB	Hu

CD11b/c Antibody

CD11b, also known as Integrin alpha-M, is a commonly used microglial marker. It is involved in various adhesive interactions of monocytes, macrophages and granulocytes. CD11b also mediates the uptake of complement coated particles and is a receptor for fibrinogen, factor X and ICAM1.

CD8 alpha (EP1150Y) Antibody NB110-55706

Species: Hu
Applications: FACS, ICC, IHC, WB

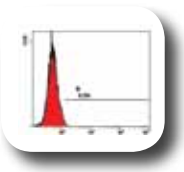
Immuno-histochemical analysis of human tissues using NB110-55706.

CD14 Antibody NB100-2807

Species: Hu
Applications: IHC, PEP-ELISA, WB

Western blot analyis of human lymph node lysate using NB100-2807.

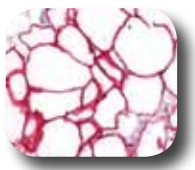
SSEA1 (MC-480) Antibody NB100-1831



Species: Hu, Mu
Applications: FACS, ICC, IF

Flow cytometric analysis of NTERA-2 cells using NB100-1831.

CD36 Antibody NB400-144



Species: Bv, Hu, Mk, Mu, Rt
Applications: ICC, IF, IHC, WB

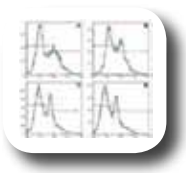
Immunohistochemical analysis of of humnan adipocytes using NB400-144.

CD44 (EPR1013Y) Antibody NB110-55700

Species: Hu
Applications: FACS, ICC, IHC, WB

Immuno-histochemical analysis of human urinary bladder using NB110-55700.

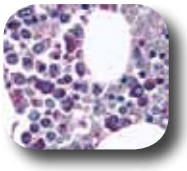
IL-2R alpha (MEM-181) [FITC] Antibody NB120-18275



Species: Hu
Applications: FACS

Surface staining of human PBMC using NB120-18275.

CD11b/c Antibody NB110-40766



Immunohistochemical analysis of bone marrow myeloid precursors using NB110-40766.

Species: Hu, Mu
Applications: FACS, ICC, IF, IHC-P, WB

Autoimmune Disorders

NIH estimates that 23.5 million Americans suffer from autoimmune diseases. Although these diseases are rare, their prevalence is rising. Autoimmune diseases are disorders that occur due to autoimmunity, an inappropriate immune response against one's own organs, tissues or cells. Autoimmunity occurs naturally in everyone to some degree, however autoimmune diseases arise as a pathological consequence. There are two types of autoimmune disorders: systemic autoimmune diseases and localized autoimmune diseases. As the names imply, the former causes damage of many organs, while the later cause damage of a single organ or tissue. Heritability and environmental factors are the two leading causes of autoimmune diseases.

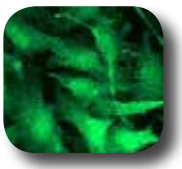
Multiple Sclerosis

Multiple Sclerosis (MS) is an inflammatory disease of the central nervous system that is thought to be initiated by self-reactive T cells. Activated T cells, capable of crossing the blood-brain barrier, target myelin basic protein, a major component of the myelin sheath, causing sclerotic plaques. Activated macrophages are present in these plaques and release proteases and cytokines which are the direct cause of demyelination. Research has shown that T cells derived from MS patients recognize proteins encoded by both herpes simplex virus and Epstein-Barr virus, however MS also has a strong genetic component.

Myelin Basic Protein

Myelin Basic Protein (MBP) plays a role in the formation of and stabilization of myelin sheaths. Smaller isoforms may play an important role in remyelination of axons affected by MS. Some studies have shown a link between the MBP gene and a predisposition to MS.

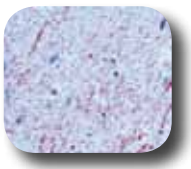
MBP (EP1448Y) Antibody
NB110-57186



Immunohistochemical analysis of PC12 cells using NB110-57186.

Species: Hu, Mu, Rt
Applications: FACS, ICC, IP, WB

MBP Antibody
NB100-872



Immunohistochemical of human brain stained using NB100-872.

Species: Hu, Rt
Applications: IHC-Fr

MBP Antibody
R-107-100

Immunohistochemical analysis of traumatized human brain cells using R-107-100.

Species: Hu, Rt
Applications: IHC

Epstein-Barr Virus

The Epstein-Barr Virus (EBV) is a member of the Herpes virus family and is one of the most common and successful human viruses. This virus persists within B cells and is controlled by virus-specific T cells. Studies suggest that patients with MS may carry a population of T cells that overreact to EBV. Thus, high levels of antibodies to EBV are an indicator of increased risk for developing MS.

[EBNA1 NB500-312, NBP1-04287] Lünemann, J., et al. Increased frequency and broadened specificity of latent EBV nuclear antigen-1-specific T cells in multiple sclerosis. Brain, Jun 2006; 129(6):1493-1506.

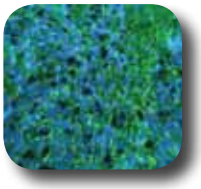
Additional EBV Antibodies:

NB120-17085	NB100-64578
NB110-8352	NBP1-22825
NB100-65695	NB500-312
NB110-8352	NBP1-04287

Proteolipid Protein

Proteolipid Protein (PLP) is an abundant protein found in myelin of the central and peripheral nervous systems. It stabilizes myelin by preventing lipid bilayer fusion. PLP is one of the most studied myelin proteins due to the prevalence of PLP mutations in humans and animals.

Myelin PLP Antibody
NB100-1608



Immunohistochemical analysis of immature oligodendrocytes of white matter tracts using NB100-1608.

Species: Mu
Applications: ICC, IHC, WB

Myelin PLP Antibody
NB100-74503

Immunocytochemical analysis of PLP in mouse brain thick section using NB100-74503.

Species: Mu
Applications: ICC, WB

Type 1 Diabetes

Type 1 Diabetes is a disease in which the immune system destroys insulin-producing beta cells in the pancreas. Current research shows that this attack is mediated by killer T cells. Apoptosis of beta cells occurs several months prior to symptomatic onset, thus type 1 diabetes is sometimes referred to as a silent killer. Studies show that B lymphocytes also play a role in pathogenesis, however their role is less clear.

Insulin

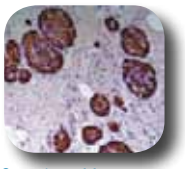
Insulin is a polypeptide hormone that enhances membrane transport of glucose and other molecules, as well as promoting glycogen storage, formation of triglycerides and synthesis of proteins and nucleic acids. Deficiencies in insulin result in type 1 diabetes.

Insulin (E2E3) Antibody
NB120-9569

Immuno-histochemical analysis of human pancreas using NB120-9569.

Species: Bv, Hu, Po, Rt, Rb
Applications: ELISA, ICC, IHC-P, WB

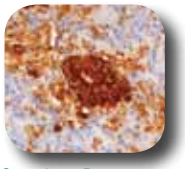
Proinsulin (C-PEP-01) Antibody
NB500-413



Immuno-histochemical analysis of human pancreas using NB500-413.

Species: Hu
Applications: ELISA, ICC, IHC-P, RIA

Insulin (D3E7 (5B6/6)) Antibody
NB100-64697



Immuno-histochemical analysis of human pancreas using NB100-64697.

Species: Rt
Applications: ELISA, IHC-Fr, IHC-P

PTPRN

PTPRN, also known as IA2, belongs to the protein tyrosine phosphatase family. IA2 is an autoantigen reactive with type 1 diabetes patients' sera, thus it may be a potential target of autoimmunity in type 1 diabetes.

PTPRN Antibody
NBP1-00134

Western blot analylsis on NIH 3T3 lysate using NBP1-00134.

Species: Hu, Mu, Rt
Applications: ELISA, WB

PTPRN Antibody
H00005798-B01

Western Blot analysis on transfected 293T cell line (Lane 1) using H00005798-B01.

Species: Hu
Applications: ELISA, WB

[PTPRN NBP1-00134] Buzzetti R, et al. Non Insulin Requiring Autoimmune Diabetes Study Group. High titer of autoantibodies to GAD identifies a specific phenotype of adult-onset autoimmune diabetes. Diabetes Care. 2007 Apr;30(4):932-938.

CD137 Antibody
NB100-92367

Western blot analysis on extracts from K562 cells using NB100-92367.

Species: Hu
Applications: ELISA, IF, WB

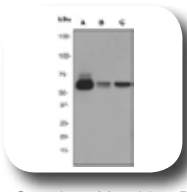
CD137

CD137 belongs to the tumor necrosis factor receptor family and is expressed on activated T cells. The functions of CD137 in T cells include regulating activation, proliferation and apoptosis. Studies suggest that CD137 plays a significant role in the development of and genetic predisposition to type 1 diabetes. CD137 antibody therapy can suppress the development of type 1 diabetes in mice.

GAD

Glutamic acid decarboxylase (GAD) catalyzes the conversion of glutamate to GABA, a major inhibitory neurotransmitter in the CNS. GAD exists as two isoforms, GAD65 and GAD67. GAD65 is thought to be the major autoantigen and an autoreactive T cell target in type 1 diabetes.

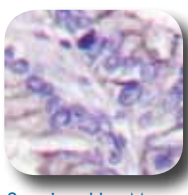
GAD65 (EPR2553Y) Antibody
NBP1-40557



Western blot analysis on (A) fetal brain, (B) mouse brain and (C) rat brain lysates using NBP1-40557.

Species: Hu, Mu, Rt
Applications: WB

GAD65/67 Antibody
NB100-92033

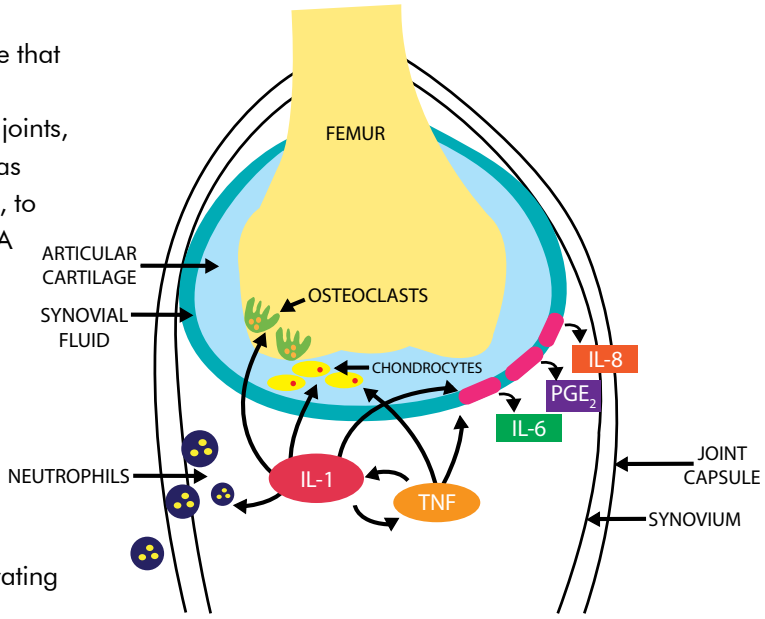


Immuno-histochemical analysis of human lung carcinoma tissue using NB100-92033.

Species: Hu, Mu
Applications: ELISA, IF, IHC-P, WB

Rhuematoid Arthritis

Rhuematoid arthritis (RA) is an autoimmune disease that causes chronic inflammation of the joints which eventually leads to their destruction. In RA affected joints, lymphocytes are activated causing cytokines, such as tumor necrosis factor (TNF) and interleukin-1 (IL-1), to be expressed in the inflamed areas. T cells from RA patients recognize cartilage protein and a protein encoded by the bacterium that causes teburculosis, thus suggesting that mycobacterial infection may trigger RA. The incidence of RA has a negative correlation with thymus function. Patients with RA inevitably experience pain alongside the swelling and tenderness associated with rheumatoid joint inflammation. IL-1 and TNF strongly induce the production of PGE2, leukotrienes and platelet-activating factor, which are involved in the pain mechanism.



TNF

Tumor necrosis factor (TNF) is a cytokine produced by macrophages that causes the inflammation associated with RA. Medications currently available to combat RA function by binding TNF and preventing it from functioning.

TNF alpha Antibody
NB100-80057

Western blot analysis on recombinant protein using NB100-80057.

Species: Hu
Applications: WB

TNF alpha Antibody
NBP1-19532

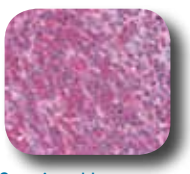
Immuno-histochemical analysis of human colon carcinoma tissue using NBP1-19532.

Species: Hu, Mu, Rt
Applications: IF, IHC-P

IL-1

Interleukin-1 (IL-1) is a pivotal cytokine involved in the pathogenesis of RA. IL-1 alpha and IL-1 beta bind the same cell surface receptor, have 25% amino acid sequence identity, and elicit similar biological responses. IL-1 works with IL-6 and TNF alpha to induce early onset inflammatory responses. IL-1 also activates chondrocytes to stimulate cartilage break-down, activates osteoclasts to initiate bone resoprtion, and induces fibroblast proliferation to initiate synovial pannus formation.

IL-1 alpha Antibody
NBP1-02774



Immuno-histochemical analysis of human spleen using NBP1-02774.

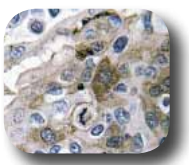
Species: Hu
Applications: ELISA, IHC-P, WB

IL-1 beta (EP407Y) Antibody
NB110-57112

Western blot analysis of on recombinant protein using NB110-57112.

Species: Hu
Applications: WB

IL-1 beta Antibody
NBP1-19775



Immuno-histochemical analysis of human lung carcinoma tissue using NBP1-19775.

Species: Hu, Mu, Rt
Applications: IHC-P

IL-1 beta (EP408Y) Antibody
NB110-57113

Western blot analysis on recombinant protein using NB110-57113.

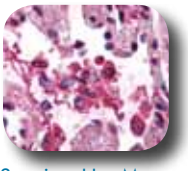
Species: Hu
Applications: WB

IL-1 beta Antibody
NB600-633

Western blot analysis of anti-IL1β using NB600-633.

Species: Hu, Mk
Applications: ELISA, FACS, IHC-Fr, IHC-P, IP, RI, WB

IL-1 beta Antibody
NBP1-03300



Immuno-histochemical analysis of human lung using NBP1-03300.

Species: Hu, Mu
Applications: ELISA, IF, IHC-P, IP, WB

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