

anti-mouse CD3 ϵ FITC-conjugated

FITC- conjugated monoclonal antibody 145-2C11 to mouse CD3 ϵ

Cat-No: **22150033S**

100 μ l

Clone: 145-2C11

Specificity: This anti-mouse T3 complex CD3 ϵ monoclonal antibody is specific for a 25 kDa protein component (e-T3) of the antigen specific T cell receptor on all mouse strains tested. The e-T3 protein has been shown to be non-covalently associated with the cell surface ab heterodimer of the CD3 associated complex. This monoclonal antibody reacts with all mature T cells and can both activate and inhibit T cell function. This fact identifies e-T3 as a cell surface protein involved in the transduction of activation signals. All peripheral T cells express this determinant, however, B cells and bone marrow cells have proven to be negative. Although the expression of this particular epitope on peripheral T cells is uniformly high, staining of thymocytes reveals distinct subpopulations of cells differing in the level of expression of this marker. This antibody will prove useful in studying the role of various components of the TCR complex in T cell activation and development, and will allow for the development of an animal model in which to investigate the immunoregulatory effects of in vivo administration of anti-CD3 antibodies, an area of obvious clinical importance.

Isotype subclass: Hamster IgG

Form: The purified antibody is conjugated with Fluoresceinisothiocyanate (FITC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

References:

- 1.) Ke, Y., G. Jiang, et al. (2011). "Anti-CD3 antibody ameliorates experimental autoimmune uveitis by inducing both IL-10 and TGF- β dependent regulatory T cells." *Clinical Immunology* 138(3) : 311-320
- 2.) Peng, B., P. Ye, et al. (2009) "Anti-CD3 antibodies modulate anti-factor VIII immune responses in hemophilia A mice after factor VIII plasmid-mediated gene therapy." *Blood*. 114(20) : 4373-4382
- 3.) Wu, H. Y., F.J. Quintara, et al. (2008). "Nasal Anti-CD3 antibody ameliorates lupus by inducing an IL-10-Secreting CD4+CD25-LAP+ Regulatory T cell and is associated with the down-regulation of IL-17+ CD4+ ICOS+ CXCR5+ follicular helper T cells." *The Journal of Immunology* 181(9): 6038-6050

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD4 FITC-conjugated

FITC- conjugated monoclonal antibody GK1.5 to mouse CD4

Cat-No: **22850043S**

100 µl

Clone: GK1.5

Specificity: The CD4 (L3/T4) antigen is thought to be the murine equivalent of the human Leu3/OKT4 antigen. This T cell surface molecule appears to be expressed by the helper/inducer subset of murine T cells and by delayed hypersensitivity T cells but not by cytotoxic T cells or their precursors. CD4 (L3/T4) and CD8a (Ly 2) have been shown to be present on mutually exclusive T cells in the peripheral lymphoid organs but the thymus contains cells expressing both CD4 (L3/T4) and CD8a (Ly2). The anti-mouse CD4 (L3/T4) mAb binds to approximately 85% of mouse thymocytes, 20% splenocytes, 50% lymph node cells, and a small number of bone marrow cells. It detects a protein of approximately 52 kDa on SDS-PAGE "Western Blots" (from Con A blast cell membranes) and is therefore similar to a well characterized human Leu3/T4 antigen (4).

Isotype subclass: Rat IgG2b

Form: The purified antibody is conjugated with Fluoresceinisoithiocyanate (FITC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

References:

- 1.) Teijaro, John R., David Verhoeven, Carly A. Page, Damian Turner, and Donna L. Farber. Journal of Virology 84, no. 18 (2010): 9217-9226.
- 2.) Hafalla, Julius Clemence R., Carla Claser, Kevin N. Couper, Georges Emile Grau, Laurent Renia, J. Brian de Souza, and Eleanor M. Riley. PLoS Pathog 8, no. 2 (2012): e1002504.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone:+49-(0)4491-400997, fax:+49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD8a FITC-conjugated

FITC- conjugated monoclonal antibody YTS 169.4 to mouse CD8a

Cat-No: **22150083S**

100 µl

Clone: YTS 169.4

Specificity: The anti-CD8a (Ly 2) monoclonal antibody reacts with a protein of approximately 30 kDa found on mouse thymocytes and mouse cytotoxic/suppressor T cells. It does not bind to mouse helper/inducer T cells. It binds to T lymphocytes from all mouse strains regardless of phenotypic expression (ie. reacts with T lymphocytes from mouse strains expressing the Ly 2.1 or Ly 2.2 phenotype.). It can be used to investigate the role of T cells in models for infectious disease, autoimmunity, transplantation tolerance and fundamental aspects of immunology. It can also be useful to identify/ eliminate cytotoxic or suppressor T lymphocytes in vivo or in vitro.

Isotype subclass: Rat IgG2b

Form: The purified antibody is conjugated with Fluoresceinisoithiocyanate (FITC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

References:

- 1.) Moreau J-L, Nabholz M, Diamantstein T, Malek T, Shevach E, Thèze J (1987). Monoclonal Antibodies identify three epitope clusters on the mouse p55 subunit of the interleukin 2 receptor: relationship to the interleukin 2 binding site. *European J. Immunology* 17, 1835-1838.
- 2.) Hashimoto N, Nabholz M, MacDonald HR, Zubler RH (1986). Dissociation of interleukin 2 dependent and independent B cell proliferation with monoclonal anti-interleukin 2 receptor antibody. *European J. Immunology* 16, 317-320.
- 3.) Lowenthal JW, Corthésy P, Tougne C, Lees R, MacDonald HR, Nabholz M (1985). High and low affinity IL-2 receptors: Analysis by IL-2 dissociation rate and reactivity with monoclonal anti-receptor antibody PC61. *J. Immunology* 135, 3988-3994.
- 4.) Ceredig R, Lowenthal JW, Nabholz M, MacDonald HF. (1985) Expression of interleukin-2 receptor as a differentiation marker on intrathymic stem cells. *Nature* 314: 98-100

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD9 FITC-conjugated

FITC- conjugated monoclonal antibody EM-04 to mouse CD9

Cat-No: **22270093S**

100 µl

Clone: EM-04

Specificity: The rat monoclonal antibody EM-04 recognizes CD9 antigen, a 24 kDa transmembrane protein expressed on platelets, monocytes, pre-B lymphocytes, granulocytes and activated T lymphocytes.

Isotype subclass: Rat IgG1

Form: The purified antibody is conjugated with Fluoresceinisothiocyanate (FITC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

Background: CD9 belongs to proteins of tetraspanin family that orchestrate cholesterol-associated tetraspanin-enriched signaling microdomains within the plasma membrane, forming complexes with each other as well as with integrins, membrane-anchored growth factors and other proteins. CD9 is involved in cell motility, osteoclastogenesis, neurite outgrowth, myotube formation, and sperm-egg fusion, plays roles in cell attachment and proliferation and is necessary for association of heterologous MHC II molecules on the dendritic cell plasma membrane which is important for effective T cell stimulation. CD9 is also considered as metastasis suppressor in solid tumors.

References:

1. Le Naour F and others: Science. 2000 Jan 14;287(5451):319-21
2. Liu WM and others: J Mol Endocrinol. 2006 Feb;36(1):121-30
3. Unternaehrer JJ and others: Proc Natl Acad Sci U S A. 2007 Jan 2;104(1):234-9.
4. Kotha J and others: Atherosclerosis. 2009 Apr;203(2):377-86.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone:+49-(0)4491-400997, fax:+49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD11a FITC-conjugated

FITC- conjugated monoclonal antibody M17/4 to mouse CD11a

Cat-No: **22850113S**

100 µl

Clone: M17/4

Specificity: The rat monoclonal antibody M17/4 reacts with CD11a, a 180 kDa glycoprotein integrin alpha L, also known as the lymphocyte function associated antigen-1 (LFA-1) alpha chain.

Isotype subclass: Rat IgG2a

Form: The purified antibody is conjugated with Fluorescein isothiocyanate (FITC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

Background: CD11a is a 180 kD glycoprotein, also known as α_L integrin, LFA-1 α , Ly-15, or Ly-21. It is a member of the integrin family, primarily expressed on lymphocytes, monocytes/macrophages, and granulocytes. In association with CD18, the CD11a/CD18 complex forms LFA-1. CD11a plays an important role in intercellular adhesion and costimulation by binding its ligands, ICAM-1 (CD54), ICAM-2 (CD102), and ICAM-3 (CD50).

References:

1. Sanchez-Madrid F, et al. 1982. Cell Immunol. 73:1. (IP, Block)
2. Kuhlman P, et al. 1991. J. Immunol. 146:1773. (IP, Block)
3. Mizgerd JP, et al. 1997. J. Exp. Med. 186:1357. (IHC)
4. Hailman E and Allen PM. 2005. J. Immunol. 175:4847. (FC)

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD11b FITC-conjugated

FITC- conjugated monoclonal antibody M1/70.15 to mouse CD11b

Cat-No: **22159113S**

100 µl

Clone: M1/70.15

Specificity: The anti-mouse CD11b (Mac-1; Ly 40) monoclonal antibody is specific for the 170 kDa α subunit of Mac-1 which mediates adhesion to ICAM-1 (CD54) and C3bi. Mac-1 is expressed on granulocytes, macrophages, natural killer cells and B-1 cells in the peritoneal and pleural cavities. Mac-1 is up-regulated on neutrophils after activation. This particular clone blocks cell adherence and C3bi binding but does not block cell mediated lysis.

Isotype subclass: Rat IgG2b

Form: The purified antibody is conjugated with Fluorescein isothiocyanate (FITC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow cytometry

Background: CD11b (integrin α M subunit) is a 165-170 kDa type I transmembrane glycoprotein that non-covalently associates with integrin β 2 subunit (CD18); expression of the CD11b chain on the cell surface requires the presence of the CD18 antigen. CD11b/CD18 integrin (Mac-1, CR3) is highly expressed on NK cells, neutrophils, monocytes and less on macrophages. CD11b/CD18 integrin is implicated in various adhesive interactions of monocytes, macrophages and granulocytes, facilitating their diapedesis, as well as it mediates the uptake of complement coated particles, serving as a receptor for the iC3b fragment of the third complement component.

References:

- 1.) Springer T, Galfrè G, Secher DS, Milstein C. Eur J Immunol. 1978 Aug;8(8):539-51.
- 2.) Ault KA, Springer TA: J Immunol. 1981 Jan;126(1):359-64.
- 3.) Sanchez-Madrid F, Simon P, Thompson S, Springer TA: J Exp Med. 1983 Aug 1;158(2):586-602.
- 4.) Zhang Y, McCormick LL, Desai SR, Wu C, Gilliam AC: J Immunol. 2002 Mar 15;168(6):3088-98.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD18 FITC-conjugated

FITC- conjugated monoclonal antibody M18/2 to mouse CD18

Cat-No: **22850183S**

100 µl

Clone: M18/2

Specificity: The rat monoclonal antibody reacts with mouse CD18, the 90-95 kDa integrin beta 2 glycoprotein.

Isotype subclass: Rat IgG2a

Form: The purified antibody is conjugated with Fluorescein isothiocyanate (FITC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

Background: CD18 is a 95 kD protein, also known as integrin β 2 subunit. It is expressed on all leukocytes. CD18, in association with integrin α chain CD11a, CD11b, and CD11c forms LFA-1, Mac-1, and α X β 2, respectively, and plays an important role in leukocytes adhesion. The CD18 integrin complexes bind ICAM-1 (CD54), ICAM-2 (CD102), ICAM-3 (CD50), iC3b, and fibrinogen. The M18/2 antibody is able to block tumor cell metastasis and enhance cell adhesion.

References:

- 1.) Sanchez-Madrid, F., P. Simon, et al. Mapping of antigenic and functional epitopes on the alpha- and beta-subunits of two related mouse glycoproteins involved in cell interactions, LFA-1 and Mac-1. J Exp Med 1983. 158(2): 586-602.
- 2.) Barlow SC, et al. 2004. Amer. J. Pathol. 165:1849. (IHC)

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD19 FITC-conjugated

FITC- conjugated monoclonal antibody 1D3 to mouse CD19

Cat-No: **22270193S**

100 µl

Clone: 1D3

Specificity: The rat monoclonal antibody 1D3 detects mouse CD19, 95 kDa type I transmembrane glycoprotein (immunoglobulin superfamily) expressed on B lymphocytes and follicular dendritic cells; it is lost on plasma cells.

Isotype subclass: Rat IgG2a

Form: The purified antibody is conjugated with Fluorescein isothiocyanate (FITC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

Background: CD19 is a transmembrane glycoprotein of Ig superfamily expressed by B cells from the time of heavy chain rearrangement until plasma cell differentiation. It forms a tetrameric complex with CD21 (complement receptor type 2), CD81 (TAPA-1) and Leu13. Together with BCR (B cell antigen receptor), this complex signals to decrease B cell threshold for activation by the antigen. Besides being signal-amplifying coreceptor for BCR, CD19 can also signal independently of BCR coligation and it turns out to be a central regulatory component upon which multiple signaling pathways converge. Mutation of the CD19 gene results in hypogammaglobulinemia, whereas CD19 overexpression causes B cell hyperactivity.

References:

- 1.) Purtha WE, Tedder TF, et al. (2011) "Memory B cells, but not long-lived plasma cells, possess antigen specificities for viral escape mutants." J Exp Med. 2011 Dec 19; 208(13):2599-606.
- 2.) Erickson, J.J., P. Gilchuk, et al. (2012). "Viral acute lower respiratory infections impair CD8+ T cells through PD-1." The Journal of Clinical Investigation 122(8): 2967-2982

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD25 FITC-conjugated

FITC- conjugated monoclonal antibody PC61.5.3 to mouse CD25

Cat-No: **22150253S**

100 µl

Clone: PC61.5.3

Specificity: The anti-mouse CD25 (IL-2R) monoclonal antibody reacts with the low affinity alpha chain of the interleukin-2 receptor antigen present on activated T and B cells in mice. The antibody inhibits IL-2 binding and IL-2 dependent proliferation.

Isotype subclass: Rat IgG1

Form: The purified antibody is conjugated with Fluoresceinisoithiocyanate (FITC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

Background: CD25 (IL2Ralpha, Tac) is a ligand-binding alpha subunit of interleukin 2 receptor (IL2R). Together with beta and gamma subunit CD25 constitutes the high affinity IL2R, whereas CD25 alone serves as the low affinity IL2R. CD25 expression rapidly increases upon T cell activation. The 55 kDa CD25 molecule is enzymatically cleaved and shed from the cell surface as a soluble 45 kDa s-Tac, whose concentration in serum can be used as a marker of T cell activation. Expression of CD25 indicates the neoplastic phenotype of mast cells. CD25+ CD4+ FoxP3+ regulatory cells (Treg cells) play a crucial role in the control of organ-specific autoimmune diseases.

References:

- 1.) Hashimoto N, Nabholz M, MacDonald HR, Zubler RH (1986). Dissociation of interleukin 2 dependent and independent B cell proliferation with monoclonal anti-interleukin 2 receptor antibody. European J. Immunology 16, 317-320.
- 2.) Lowenthal JW, Corthésy P, Tougne C, Lees R, MacDonald HR, Nabholz M (1985). High and low affinity IL-2 receptors: Analysis by IL-2 dissociation rate and reactivity with monoclonal anti-receptor antibody PC61. J. Immunology 135, 3988-3994.
- 3.) Ceredig R, Lowenthal JW, Nabholz M, MacDonald HF. (1985) Expression of interleukin-2 receptor as a differentiation marker on intrathymic stem cells. Nature 314: 98-100

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-human/ -canine/ -porcine CD29 FITC-conjugated

FITC- conjugated monoclonal antibody MEM-101A to human CD29

Cat-No: **21270293S**

100 µl

Clone: MEM-101A

Specificity: The antibody MEM-101A reacts with CD29 antigen (Integrin beta 1 chain), a 130 kDa single chain type I glycoprotein expressed as a heterodimer (non-covalently associated with the integrin alpha subunits 1-6). CD29 is broadly expressed on majority of hematopoietic and non-hematopoietic cells (leukocytes, platelets, fibroblasts, endothelial cells, epithelial cells and mast cells).

HLDA VI; WS Code AS A048

Isotype: Mouse IgG1

Species Reactivity: Human, Canine, Porcine

Form: The purified antibody is conjugated with Fluorescein isothiocyanate (FITC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1% BSA and 0.09% sodium azide (pH 7.2)

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4° C. Do not freeze. Avoid prolonged exposure to light.

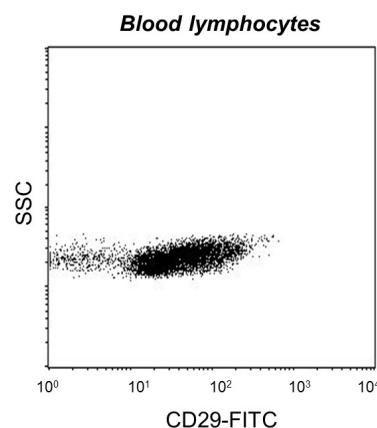
Application: Flow Cytometry

Background: CD29 (β1 integrin subunit, GPIIb) forms non-covalently linked heterodimers with at least 6 different α chains (α1-α6, CD49a-f) determining the binding properties of β1 (VLA) integrins. These integrins mediate cell adhesion to collagen, fibronectin, laminin and other extracellular matrix (ECM) components. This interaction hinders cell death, whereas disruption of anchorage to ECM leads to apoptosis. Decreased expression of most β1 integrins correlates with acquiring multidrug resistance of tumour cells during selection in presence of antitumour drug. In platelets, translocation of intracellular pool of β1 integrins to the plasma membrane following thrombin stimulation. These integrins are also up-regulated in leukocytes during emigration and extravascular migration and appear to be critically involved in regulating the immune cell trafficking from blood to tissue, as well as in regulating tissue damage and disease symptoms related to inflammatory bowel disease. Through a β1 integrin-dependent mechanism, fibronectin and type I collagen enhance cytokine secretion of human airway smooth muscle in response to IL-1β.

References: Leukocyte Typing VI. Kishimoto T. et al. (Eds.), Garland Publishing Inc. (1997).

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.



Attention! Cells from one healthy individual are shown. Cell Populations and staining intensity may vary interindividually.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-human / -mouse CD44 FITC-conjugated

FITC - conjugated monoclonal antibody to CD44 (human, mouse)

Cat-No: **21850443S**

100 µl

Clone: IM7

Specificity: The IM7 monoclonal antibody reacts with all isoforms of mouse CD44 (Pgp-1). CD44 is expressed by hematopoietic and non-hematopoietic cells. Bone marrow myeloid cells and memory T cells highly express this antigen and peripheral B and T cells can upregulate the expression of CD44. CD44 functions as an adhesion molecule through its binding to hyaluronate, an extracellular matrix component.

Isotype subclass: Rat IgG2b

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2)

Form: The purified antibody is conjugated with Fluorescein isothiocyanate (FITC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow cytometry

References:

- 1.) Lesley, J. and I. S. Trowbridge 1982. Genetic characterization of a polymorphic murine cell-surface glycoprotein. Immunogenetics 15(3): 313-20.
- 2.) Maiti A, Maki G, Johnson P. TNF-alpha induction of CD44-mediated leukocyte adhesion by sulfation. Science. 1998. Oct 30;282(5390):941-3.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD45 FITC-conjugated

FITC- conjugated monoclonal antibody IBL-5/25 to mouse CD45

Cat-No: **22150453S**

100 µl

Clone: IBL-5/25

Specificity: This anti-mouse CD45 monoclonal antibody detects CD45 (L-CA) which is a transmembrane phosphotyrosine phosphatase expressed on leukocytes. This monoclonal antibody induces the in vitro clustering of mouse lymphocytes (both T and B cells).

Isotype subclass: Rat IgG1/k

Form: The purified antibody is conjugated with Fluorescein isothiocyanate (FITC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

Background: CD45 (LCA, leukocyte common antigen) is a receptor-type protein tyrosine phosphatase ubiquitously expressed in all nucleated hematopoietic cells, comprising approximately 10% of all surface proteins in lymphocytes. CD45 glycoprotein is crucial in lymphocyte development and antigen signaling, serving as an important regulator of Src-family kinases. CD45 protein exists as multiple isoforms as a result of alternative splicing; these isoforms differ in their extracellular domains, whereas they share identical transmembrane and cytoplasmic domains. These isoforms differ in their ability to translocate into the glycosphingolipid-enriched membrane domains and their expression depends on cell type and physiological state of the cell. Besides the role in immunoreceptor signaling, CD45 is important in promoting cell survival by modulating integrin-mediated signal transduction pathway and is also involved in DNA fragmentation during apoptosis.

References:

- 1.) Balazas M., Horvath G., Balogh P. Simple determination for donor/host origin and donor leukocyte subsets in rat-mouse chimeras. *J Immunol Methods*. 1998 218:117-21.
- 2.) Balogh P., Kumanovics A., Juhasz I. Studies on the tissue-related phenotypic heterogeneity of murine Bcells. *Dev Immunol*. 1998 6: 179-85.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD45R FITC-conjugated

FITC- conjugated monoclonal antibody RA3-6B2 to mouse CD45R

Cat-No: **22159453S**

100 µl

Clone: RA3-6B2

Specificity: This anti-mouse CD45R, B220 (Ly 5) monoclonal antibody reacts with a form of the CD45 antigen found on B cells and lytically active subsets of NK cells and non - MHC restricted CTL's (1,2,3,4). This antibody immunoprecipitates the high molecular weight (220,000 Da) surface molecule of the leukocyte common antigen B220 (1) on B cells.

Isotype subclass: Rat IgG2a

Form: The purified antibody is conjugated with Fluoresceinisoithiocyanate (FITC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

References:

- 1.) Coffman, B. 1982. Surface antigen expression and immunoglobulin rearrangement during mouse pre-B cell development. Immunological Rev. 69:5- 23.
- 2.) Zuhair, K., Ballas, and Rasmussen, W., 1993. Lymphokine-activated killer cells VII. IL-4 induces an NK1.1 + CD8a+b- TCR αβ B220+ lymphokineactivated killer subset.
- 3.) Asensi, V., and Kimeno, K., et al. 1989. Treatment of autoimmune MRL/lpr mice with anti-B220 monoclonal antibody reduces the level of anti-DNA antibodies and lymphadenopathies. Immunology 68: 204 -208.
- 4.) Ballas, A. K., and W. Rasmussen. 1990. Lymphokine-activated killer (LAK) cells. IV. Characterization of murine LAK effector subpopulations, J. Immunol. 144:386.
- 5.) Whiteland, J.L et al (1995). Immunohistochemical detection of T cell subsets and other leukocytes in paraffin embedded rat and mouse tissues with monoclonal antibodies .J. Histochem. Cytochem. 43: 313-320

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone:+49-(0)4491-400997, fax:+49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD45RC FITC-conjugated

FITC- conjugated monoclonal antibody IBL-8 to mouse CD45RC

Cat-No: **22157453S**

100 µl

Clone: IBL-8

Specificity: CD45 is a transmembrane phosphotyrosine phosphatase expressed on leukocytes. The CD45RC monoclonal antibody is directed against the exon C-dependent RC isoform and reacts strongly with B cells, and less intensely with most CD8+ T cells. It does not recognize CD4+ T cells and myeloid cells do not express the RC isoform.

Isotype subclass: Rat IgG1

Form: The purified antibody is conjugated with Fluorescein isothiocyanate (FITC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

References:

*) Czompoly T, Labadi A, Balazs M, Nemeth P, and P Balogh. Use of cyclic peptide phage display library for the identification of a CD45RC epitope expressed on murine B cells and their precursors. Biochemical and Biophysical Research Communications. 2003 307: 791-796

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD48 FITC-conjugated

FITC- conjugated monoclonal antibody HM48-1 to mouse CD48

Cat-No: **22850483S**

100 µl

Clone: HM48-1

Specificity: The monoclonal antibody HM48-1 reacts with the mouse CD48 antigen; also known as BCM1, Blast-1 (human), and OX-45 (rat).

Isotype subclass: Hamster IgG

Form: The purified antibody is conjugated with Fluoresceinisoithiocyanate (FITC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow cytometry

Background: CD48, a member of the SLAM family and Ig superfamily, is a 45 kDa GPI-linked glycoprotein expressed on the majority of hematopoietic cells. Recent publications have reported differential expression of members of the SLAM family including CD48, CD150, and CD244 among functionally distinct bone marrow hematopoietic progenitors providing a useful tool for prediction of the primitiveness of hematopoietic progenitors based on the expression of these SLAM family members. Hematopoietic stem cells (HSC) are highly purified as CD150(+)CD244(-)CD48(-) cells while non-self-renewing multipotent hematopoietic progenitors (MPP) are CD244(+)CD150(-)CD48(-) and the most restricted progenitors are CD48(+)CD244(+)CD150(-). CD48 plays a critical role in adhesion and T cell activation. In the mouse, the primary counter-receptors for CD48 are CD2 and CD244. HM48-1 is reported to modulate in vitro and in vivo CD48 functions including blocking the CD48/CD2 and CD48/CD244 interactions, inhibiting the proliferative response of mitogen-activated spleen cells, providing a costimulation signal for T cells activated in vitro through their TCR, and prolonging cardiac allograft survival in vivo.

References:

1. Chou S, et al. 2013. Exp Hematol. 41:479.
2. Artinger EL, et al. 2013. PNAS. 110:12000

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-human/mouse CD49d FITC-conjugated

FITC-conjugated monoclonal antibody PS/2 to CD49d (Human)

Cat-No: **21858493S**

100 µl

Clone: PS/2

Specificity: PS/2 recognises murine alpha 4 integrin (CD49d), a 150kD glycoprotein that can associate with either beta 1 integrin (CD29) or beta 7 integrin to form heterodimers CD49d/CD29 (VLA-4) and alpha4/beta7 (LPAM-1) respectively. CD49d is expressed on most lymphocytes, granulocytes, monocytes and thymocytes. The primary ligands for CD49d are CD106 (VCAM-1), fibronectin and MAdCAM-1.

Isotype subclass: Rat IgG2b

Form: The purified antibody is conjugated with Fluoresceinisothiocyanate (FITC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1% BSA and 0.09% sodium azide, pH 7.2

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow cytometry

Background: Integrins alpha-4/beta-1 (VLA-4 or LPAM-2) and alpha-4/beta-7 (LPAM-1) are receptors for fibronectin. They recognize one or more domains within the alternatively spliced CS-1 and CS-5 regions of fibronectin. They are also receptors for VCAM1. Integrin alpha-4/beta-1 recognizes the sequence Q-I-D-S in VCAM1. Integrin alpha-4/beta-7 is also a receptor for MAdCAM1. It recognizes the sequence L-D-T in MAdCAM1. On activated endothelial cells integrin VLA-4 triggers homotypic aggregation for most VLA-4-positive leukocyte cell lines. It may also participate in cytolytic T-cell interactions with target cells. Integrin alpha-4/beta-7 is also a receptor for MAdCAM1. Mice homozygous for a null mutation of the alpha-4 subunit gene die by day E11-E14 from detachment and rupture of the epicardium and coronary arteries.

References:

*) Rothhammer, V., S. Heink, et al. (2011). „Th17 lymphocytes traffic to the central nervous system independently of α4 integrin expression during EAE.” The Journal of Exp Med

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD62L FITC-conjugated

FITC- conjugated monoclonal antibody MEL-14 to mouse CD62L

Cat-No: **22159623S**

100 µl

Clone: MEL-14

Specificity: The anti-mouse CD62L (L-selectin Ly 22) monoclonal antibody reacts with a 90 kDa protein which is involved with the homing of lymphocytes to peripheral lymph nodes. L-selectin is expressed on most T and B lymphocytes, neutrophils, monocytes, eosinophils. Pre-incubation of lymphocytes with this antibody completely and specifically blocks binding of lymphocytes to high endothelial venules (HEV) in vitro and the migration of lymphocytes to lymph nodes in vivo. Polymorphonuclear cells preincubated with this antibody do not migrate to the inflammatory foci.

Isotype subclass: Rat IgG2a

Form: The purified antibody is conjugated with Fluorescein isothiocyanate (FITC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry, IHC

Background: CD62L (L-selectin) is an adhesion glycoprotein that is constitutively expressed on the cell surface of most T and B lymphocytes, neutrophils, monocytes, eosinophils and mediates their homing to inflammatory sites and peripheral lymph nodes by enabling rolling along the venular wall. CD62L is also involved in activation-induced neutrophil aggregation. Activation-dependent CD62L shedding, however, counteracts neutrophil rolling. CD62L has also signaling roles including enhance of chemokine receptor expression. Similarly to CD62P, the major ligand of CD62L is PSGL-1 (P-selectin glycoprotein ligand-1).

References:

1. Gallatin, W. M., I.L. Weissman., E.C. Butcher 1983. Nature 304:30-34
2. Lewinsohn, D.M., R.F. Bargatze, E.C. Butcher 1987. J.Immunology 138:4313-4321
3. Reichert, R., M. Gallatin, E. Butcher, et al. 1984. Cell 38: 89-99
4. Siegelman, M., I.C. Cheng, I.L. Weissman, et al. 1990. Cell 61: 611-622
5. Jalkanen, S., R.F. Bargatze, J. Toyos, et al. 1987. J. of Cell Biol. 105: 983-990
6. Göler M.L et al. 1997. J. of Immunol. 159: 1767-1774

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD80 FITC-conjugated

FITC- conjugated monoclonal antibody 16-10A1 to mouse CD80

Cat-No: **22850803S**

100 µl

Clone: 16-10A1

Specificity: The antibody 16-10A1 reacts with CD80 (B7-1), a 60 kDa single chain type I glycoprotein of immunoglobulin supergene family, expressed on professional antigen-presenting cells, such as dendritic cells, macrophages or activated B lymphocytes.

Isotype subclass: Armenian Hamster IgG

Form: The purified antibody is conjugated with Fluoresceinisothiocyanate (FITC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

Background: CD80 (B7-1) and CD86 (B7-2) are ligands of T cell critical costimulatory molecule CD28 and of an inhibitory receptor CTLA-4 (CD152). The both B7 molecules are expressed on professional antigen-presenting cells and are essential for T cell activation, the both molecules can also substitute for each other in this process. The question what are the differences in CD80 and CD86 competency has not been fully elucidated yet; there are still conflicts in results about their respective roles in initiation or sustaining of the T cell immune response.

References:

1. Harlan DM, *et al.* 1994. *P. Natl. Acad. Sci. USA* 91:3137. (IHC)
2. Razi-Wolf Z, *et al.* 1992. *P. Natl. Acad. Sci. USA* 89:4210. (Block, IP)
3. Hathcock KS, *et al.* 1994. *J. Exp. Med.* 180:631. (Block)

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone:+49-(0)4491-400997, fax:+49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD81 (TAPA-1) FITC-conjugated

FITC- conjugated monoclonal antibody Eat2 to mouse CD81

Cat-No: **22150813S**

100 µl

Clone: Eat2

Specificity: The antibody reacts with the extracellular loops of murine CD81 (TAPA-1) molecule. As a member of the tetraspanin superfamily of cell-surface proteins, CD81 has been linked to the control of cell proliferation, adhesion and motility. CD81 is expressed in higher levels on resting murine B cells than on resting T cells and is functionally active on B cells as it induces homotypic adhesion of B lymphocytes. Unlike human CD81, which is expressed equally on all thymocytes, murine CD81 is upregulated on CD4⁺CD8⁺ thymocytes, then down-regulated again on mature single-positive thymocytes. Murine dendritic cells, splenic macrophages and NK cells all express very high levels of CD81. CD81 has also been involved in the induction of IL-4 secretion from T cells during Th2 immune responses. It has been reported that CD81 expression can also be induced in mature T cells upon activation. This anti-CD81 mAb has been shown to decrease the proliferation of LPS stimulated CD81^{+/+} B cells to levels similar to that of CD81^{-/-} B cells.

Isotype subclass: Hamster IgG

Form: The purified antibody is conjugated with Fluoresceinisoithiocyanate (FITC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

Background: CD81 (TAPA-1), a member of the tetraspanin family, is expressed on virtually all nucleated cells, but above all on germinal center B cells. CD81 forms complexes with other tetraspanin proteins, integrins, coreceptors, MHC class I and II molecules, and influences adhesion, morphology, activation, proliferation and differentiation of B, T and other cells – e.g. in muscles CD81 promotes cell fusion and myotube maintenance. CD81 has been also identified as a receptor for the hepatitis C virus.

References:

1. Maecker, H. T., et al., 2000. Hybridoma 19:15-22.
2. Maecker, H. T., Todd, S. C., and Levy, S, 1997. Faseb J 11:428-442.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD86 FITC-conjugated

FITC-conjugated Monoclonal Antibody GL-1 to mouse CD86

Cat-No: **22270863S**

100 µl

Clone: GL-1

Specificity: The rat monoclonal antibody GL-1 reacts with CD86 (B7-2), a 70-80 kDa type I transmembrane glycoprotein of immunoglobulin supergene family, expressed on professional antigen-presenting cells, such as dendritic cells, macrophages or activated B lymphocytes.

Isotype subclass: Rat IgG2a

Form: The purified antibody is conjugated with Fluorescein isothiocyanate (FITC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1% BSA and 0.09% sodium azide (pH 7.2)

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

Background: CD80 (B7-1) and CD86 (B7-2) are ligands of T cell critical costimulatory molecule CD28 and of an inhibitory receptor CTLA-4 (CD152). The both B7 molecules are expressed on professional antigen-presenting cells and are essential for T cell activation, the both molecules can also substitute for each other in this process. The question what are the differences in CD80 and CD86 competency has not been fully elucidated yet; there are still conflicts in results about their respective roles in initiation or sustaining of the T cell immune response.

References:

1. Chung JB and others: J Immunol. 2003 Aug 15;171(4):1758-67.
2. Steptoe RJ and others: Diabetes. 2005 Feb;54(2):434-42.
3. Nolan A and others: PLoS One. 2009 Aug 12;4(8):e6600.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse/rat CD90 (Thy 1.1) FITC-conjugated

FITC- conjugated monoclonal antibody MRC OX-7 to mouse/rat CD90

Cat-No: **22150903S**

100 µl

Clone: MRC OX-7

Specificity: anti-rat CD90 (Thy 1.1) monoclonal antibody recognizes the Thy 1.1 antigenic determinant, designated CD90 on rat as well as mouse cells. This particular determinant has been defined to be monomorphic within rats but polymorphic in the mouse. This antibody reacts with Thy 1.1 mice (ie. AKR) but not Thy 1.2 mice (ie. CBA, BALB/c). The affinity of the F(ab) of this antibody for rat Thy-1 is $3 \times 10^9 \text{ M}^{-1}$ and for mouse Thy 1.1 is $3 \times 10^8 \text{ M}^{-1}$. The Thy-1 antigen is found on a variety of cell types including thymocytes, neuronal cells (mouse, rat), T and immature B cells (rat), breast epithelial cells (rat), and connective tissue. This antibody has been used to determine that the Thy 1.1 molecule is a glycoprotein with 112 amino acids which is homologous to immunoglobulin domains. The Thy-1 antigen is found on a diversity of cell types and thus it can be used as a cell marker. Applications include: flow cytometry

Isotype subclass: Mouse IgG1

Form: The purified antibody is conjugated with Fluoresceinisothiocyanate (FITC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

References:

1. Mason, D.W. and A.F. Williams. (1980) Biochemical J. 187, 1-20.
2. Campbell, D.G., Gagnon, J., Reid, K.B.M. and A.F. Williams. (1981) Biochemical J. 195, 15-30.
3. Williams, A.F. and J. Gagnon. (1982) Science 216, 696-703.
4. Neville, D.M. and R.J. Youle. (1982) Immunol. Review 62, 75.
5. Dulbecco, R., Bologna, M. and M. Unga. (1979) Proc. Nat'l. Acad. Sci. 76, 1948.

Background: CD90 (Thy-1) is an 18-35 kDa GPI-anchored plasma membrane glycoprotein expressed in many cell types, such as in hematopoietic cells and neurons, connective tissues, various fibroblast and stromal cell lines, tumor endothelial cell lines and other. In the mouse, CD90 is expressed mainly on thymocytes and peripheral T lymphocytes. It is involved in T cell activation, cellular adhesion, proliferation and migration, neurite outgrowth, wound healing, apoptosis, and fibrosis. CD90 participates in multiple signaling cascades and its effects are tissue- and cell type-specific. It often functions as an important regulator of cell-cell and cell-matrix interactions.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD117 FITC-conjugated

FITC- conjugated monoclonal antibody ACK4 to mouse CD117

Cat-No: **22151173S**

100 µl

Clone: ACK4

Specificity: The anti-mouse CD117 monoclonal antibody recognizes the receptor tyrosine kinase, c-kit. The ligand for this receptor is steel factor (stem cell factor), which exists in both soluble and membrane form. The interaction between steel factor and c-kit is essential for the development of hematopoietic, gonadal and pigment stem cells. c-kit positive cells are a subset of CD34⁺ hematopoietic precursor cells and it is expressed on 5-10% of total adult bone marrow cells.

Isotype subclass: Rat IgG2a

Form: The purified antibody is conjugated with Fluorescein isothiocyanate (FITC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

References:

- 1.) Ogawa, M., Y. Matsuzaki, S. Nishikawa, S. Hayashi, T. Kunisada, T. Sudo, T. Kina, H. Nakauchi, S. Nishikawa. 1991. Expression and Function of c-kit in Hematopoietic Progenitor Cells. J. Exp. Med. 174:63-71
- 2.) Suda, T., S. Okada, J. Suda, Y. Miura, M. Ito, T. Sudo, S. Hayashi, S. Nishikawa, H. Nakauchi. 1989. A Stimulatory Effect of Recombinant Murine Interleukin-7 (IL-7) on B-Cell Colony Formation and Inhibitory Effect of IL-1a. Blood 74(6):1936-1941

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti--mouse CD134 FITC-conjugated

FITC- conjugated monoclonal antibody OX-86 to mouse CD134

Cat-No: **22151343S**

100 µl

Clone: OX-86

Specificity: The anti-mouse CD134 monoclonal antibody detects the mouse OX-40 antigen (CD134) which is a member of the tumor necrosis factor (TNF) receptor/nerve growth factor (NGF) receptor superfamily. The OX-40 antigen is the sole receptor for the OX-40 ligand. This antibody (clone OX-86) labels the OX-40 antigen found on both mouse CD4 and CD8 single positive activated T cells. This is in contrast to rat OX-86 mAb does not block binding of the OX-40L.

Isotype subclass: Rat IgG1

Form: The purified antibody is conjugated with Fluoresceinisothiocyanate (FITC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

References:

1. Al-Shamkhani A, et al. 1996. Eur. J. Immunol. 26:1695.
2. Weinberg AD, et al. 1999. J. Immunol. 162:1818.
3. Akira H, et al. 1999. J. Immunol. 162:7058.
4. Pippig SD, et al. 1999. J. Immunol. 163:6520.
5. Higgins LM, et al. 1999. J. Immunol. 162:486.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone:+49-(0)4491-400997, fax:+49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti--mouse CD40L/CD154 FITC-conjugated

Monoclonal Antibody MR-1 to mouse CD40L

Cat-No: **22859403S**

100 µl

Clone: MR-1

Specificity: The rat monoclonal antibody MR-1 reacts with mouse CD154, a 39 kDa transmembrane glycoprotein also known as gp39 and CD40 ligand (CD40L).

Isotype subclass: Rat IgG2b

Form: The purified antibody is conjugated with Fluorescein isothiocyanate (FITC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

Background: CD154 / CD40L (CD40 ligand) is a member of the tumor necrosis factor family, and is expressed primarily on activated CD4⁺ lymphocytes, but also on mast cells, basophils, eosinophils and human dendritic cells. Its counter-receptor CD40 is expressed on antigen presenting cells, including dendritic cells, macrophages, and B cells, and also on fibroblasts. Triggering of CD40 by CD40L causes maturation of dendritic cells and upregulation of antigen presentation in functions of the MHC and costimulatory molecules. CD40L also functions as a direct stimulating factor for T cells. CD40L plays also roles e.g. in antibody class switching and modulation of apoptosis in the germinal center.

References:

- 1.) Fischbein MP, Ardehali A, Yun J, Schoenberger S, Laks H, Irie Y, Dempsey P, Cheng G, Fishbein MC, Bonavida B: CD40 signaling replaces CD4⁺ lymphocytes and its blocking prevents chronic rejection of heart transplants. J Immunol. 2000 Dec 15;165(12):7316-22.
- 2.) Hwang Y, Nahm MH, Briles DE, Thomas D, Purkerson JM: Acquired, but not innate, immune responses to Streptococcus pneumoniae are compromised by neutralization of CD40L. Infect Immun. 2000 Feb;68(2):511-7.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti--mouse CD3z (CD247) FITC-conjugated

FITC- conjugated monoclonal antibody H146-968 to mouse CD3z (CD247)

Cat-No: **22159033S**

100 µl

Clone: H146-968

Specificity: The anti-mouse CD3z monoclonal antibody detects the zeta subunit of the T cell receptor (TCR). The TCR complex consists of a ligand specific alpha/beta heterodimer non-covalently associated with five invariant chains including the CD3 gamma, delta, eta and zeta subunits. This complex regulates assembly and expression of the receptor and is thought to be responsible for transmembrane transduction of signals after binding to TCR α/β . Studies have suggested that the CD3z subunit (also known as CD247) plays an important role in two distinct cellular compartments. In the cytoplasm, it may function to regulate Ag receptor expression and in the plasma membrane it may be required for optimal signaling by the physiologic ligand Ag/MHC. The CD3z subunit is also associated with the CD16 IgG Fc receptor on NK cells.

Isotype subclass: Hamster IgG2k

Form: The purified antibody is conjugated with Fluoresceinisoithiocyanate (FITC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Stable at 4°C. Avoid prolonged exposure to light.

Application: Flow Cytometry

References:

- 1.) Rozdzial, MM, Kudo RT, Turner SL, Finkel TH, et al. 1994. Developmental Regulation of the TCR ζ -Chain, J Immunol 153:1563
- 2.) Moingeon P et al 1992. CD3 ζ Dependence of the DC2 Pathway of Activation in T Lymphocytes and Natural Killer Cells. Proc Natl Acad Sci USA Februar 15; 89 (4): 1492

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti--mouse NK-Cells FITC-conjugated

FITC- conjugated monoclonal antibody PK136 to mouse NK-Cells

Cat-No: **22155253S**

100 µl

Clone: PK136

Specificity: The anti-mouse NK cells monoclonal antibody is specific for recognizing mouse NK cells in selected strains of mice (i.e.C57BL, FVB/N, NZB but not A, AKR, BALB/c, CBA/J, C3H, C57BR, C58, DBA/1, DBA/2, SJL and 129). Clone PK136 is specific for mouse NK1.1, also known as NKR-P1C and Ly 55. Mouse NK1.1 is expressed on NK cells and NKT cells on the following strains: C57BL, FVB/N and NZB. There are published reports that PK136 mAb binds to NKR-PIB on SJL/K NK cells.

Isotype subclass: Mouse IgG2a

Form: The purified antibody is conjugated with Fluoresceinisoithiocyanate (FITC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2)

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

References:

- 1.) Koo, G.C. and Peppard, J.R. 1981. Establishment of monoclonal anti-NK-1.1 antibody, Hybridoma 3:301-303.
- 2.) Koo, G.C., Dumont, F., Hackett, J.Jr., Tutt, M. and Kumar, V. 1986. The NK-1/1(-) mouse: A model to study differentiation of murine NK cells. J. Immunol. 137:3742-3737.
- 3.) Kung, S.K.P., and Miller, R.G. 1985. The NK1.1 antigen in NK-mediated F1 antiparent killing in vitro. J. Immunol. 154:1624.
- 4.) Kung, S.K.P., Ruey-Chyi, S., Shannon, J. and R. Miller. 1999. The NKR-P1B Gene product is an inhibitory receptor on SJL/J NK cells. J. Immunol. 162 (10) 5876.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone:+49-(0)4491-400997, fax:+49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse alpha/beta TCR FITC-conjugated

FITC- conjugated monoclonal antibody H57-597 to mouse alpha/beta TCR

Cat-No: **22155213S**

100 µl

Clone: H57-597

Specificity: The alpha/beta T cell receptor monoclonal antibody reacts with the surface of all alpha/beta TCR bearing cells and does not react with receptors on gamma/delta TCR positive T cells. This monoclonal antibody when used in an immobilized form was able to activate all alpha/beta TCR bearing T cell hybridomas tested to produce IL-2. Use of this antibody in conjunction with an anti-CD3e monoclonal antibody allows for accurate measurements of the mutually exclusive sub-populations of alpha/beta TCR and gamma/delta TCR bearing T cells. This clone has been reported to work with frozen sections and Western Blotting.

Isotype subclass: Hamster IgG

Form: The purified antibody is conjugated with Fluorescein isothiocyanate (FITC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

Background: The antigen-specific T cell receptor (**TCR**) is composed of either alpha and beta subunit, or gamma and delta subunit. Majority of T cells present in the blood, lymph and secondary lymphoid organs express TCR alpha/beta heterodimers, whereas the T cells expressing TCR gamma/delta heterodimers are localized mainly in epithelial tissues and at the sites of infection. The subunits of TCR heterodimers are covalently bonded and in the endoplasmic reticulum they associate with CD3 subunits to form functional TCR-CD3 complex. Lack of expression of any of the chains is sufficient to stop cell surface expression.

References:

- * Kubo, R.T. Born, et al. 1989. J. of Immunol. 142:2736-2742.
- * Goodman, T., Lefrancois, L. 1989. J. of Exp. Med. 170: 1569-1581.
- * Gross, J.A., E. Callas and J.P. Allison. 1992. J. of Immunol. 149: 380-388.
- * Palathumpat, V. et al. 1992. J. of Immunol. 148: 3319-3326.
- * Paliwal, V. et al. 1997. J. of Immunol. 159: 1718-1727.
- * Skarstein, K. et al. 1994. Immunology. 81:497-501.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
 phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse gamma/delta TCR FITC-conjugated

FITC- conjugated monoclonal antibody GL-2 to mouse gamma/delta TCR

Cat-No: **22155223S**

100 µl

Clone: GL-2

Specificity: The anti-mouse gamma/delta T cell receptor monoclonal antibody reacts with the surface on all gamma/delta TCR bearing cells and does not react with receptors on alpha/beta TCR positive cells. It is thought that this clone may be specific for a determinant present on C-delta. The gamma/delta T cell receptors are present on murine CD4⁺CD8⁻ thymocytes, peripheral T cells, intestinal CD8⁺ intraepithelial lymphocytes and Thy 1⁺ dendritic epidermal cells in the skin. Use of this antibody in conjunction with an anti-CD3 monoclonal antibody allows for accurate measurements of the mutually exclusive sub-populations of gamma/delta TCR and alpha/beta TCR bearing T cells. The anti mouse gamma/delta TCR monoclonal antibody has also been used successfully for the characterization of murine intraepithelial lymphocytes.

Isotype subclass: Hamster IgG

Form: The purified antibody is conjugated with Fluoresceinisoithiocyanate (FITC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

Background: The antigen-specific T cell receptor (TCR) is composed of either alpha and beta subunit, or gamma and delta subunit. Majority of T cells present in the blood, lymph and secondary lymphoid organs express TCR alpha/beta heterodimers, whereas the T cells expressing TCR gamma/delta heterodimers are localized mainly in epithelial tissues and at the sites of infection. The subunits of TCR heterodimers are covalently bonded and in the endoplasmic reticulum they associate with CD3 subunits to form functional TCR-CD3 complex. Lack of expression of any of the chains is sufficient to stop cell surface expression.

References:

1. Brenner et al. 1986. Nature (Lond.) 322:145.
2. Cron. R & et al. 1988.. J. Immunol. 141:1074.
3. Nakawishii, N.K. et al. 1987. Nature (Lond.) 325:720.
4. Sowder et al. 1988.. J. Exp. Med. 167:315.
5. Goodman, T & L. Lefrancois. 1988. Nature (Lond.) 333:855.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone:+49-(0)4491-400997, fax:+49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse Gr-1 FITC-conjugated

FITC- conjugated monoclonal antibody RB6-8C5 to mouse Gr-1

Cat-No: **22155243S**

100 µl

Clone: RB6-8C5

Specificity: The anti-mouse Gr-1 monoclonal antibody reacts with the myeloid differentiation antigen GR-1. This 25-30 kDa cell surface antigen is expressed on myeloid cells but not lymphoid or erythroid cells. The expression of the Gr-1 antigen increases with granulocyte maturation as shown by the distinct populations of bone-marrow cells this monoclonal antibody labels: negative, low positive and high positive. Expression is transient on cells of monocytic lineage. The antibody is a useful antibody for studies of myeloid differentiation stages and their regulations by cytokines.

Isotype subclass: Rat IgG2b

Form: The purified antibody is conjugated with Fluoresceinisoithiocyanate (FITC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2)

Expiration date: The reagent is stable until the expiry date stated on the vial label

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

References:

- 1.) Spangrude, G.J., et al. Purification and characterization of mouse hematopoietic stem cells. Science 241:58-62, 1991.
- 2.) Muller, C. E. et al. Isolation of two early B lymphocyte progenitors from mouse marrow: a committed pre-pre-B cell and a clonogenic thy-1 lo hematopoietic stem cell. Cell 44:653-662.
- 3.) H. Kjetil et al. Characterization and regulation of RB6-8C5 antigen expression on murine bone marrow cells. 1991. J. Immunol. 147: 22-28.
- 4.) Brummer, Elmer et al. Immunological activation of polymorphonuclear neutrophils for fungal killing: Studies with murine cells and blastomyces dermatitidis in vitro. J. Leuko. Bio 36:505-520, 1984.
- 5.) Jutila, M.A. et al. Ly-6C is a monocyte/macrophage and endothelial cell differentiation antigen regulated by interferon-gamma. J. Immunol. 18: 1819-1826, 1988.
- 6.) Whiteland, J. L. et al (1995). Immunohistochemical detection of T cell subsets and other leukocytes in paraffin embedded rat and mouse tissues with monoclonal antibodies, J.Histochem. Cytochem. 43:313-320.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone:+49-(0)4491-400997, fax:+49-(0)4491-400998, info@immunotools.com
www.immunotools.com

Mouse IgG1 control FITC-conjugated

FITC - conjugated monoclonal antibody

Cat-No: **21275513S**

100 µl

Clone: PPV-06

Specificity: This mouse IgG1 monoclonal antibody (clone PPV-06) reacts with undefined epitope on a plant pathogen.

Negativ Species: Human, Porcine, Mouse and Rat

Isotype subclass: Mouse IgG1

Form: The purified antibody is conjugated with Fluorescein isothiocyanate (FITC) under optimum conditions. The conjugate is purified by size-exclusion chromatography and adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2)

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry, Control Experiments

Background: The specificity of staining by monoclonal antibodies to target antigens should be verified by establishing the amount of non-specific antibody binding.

In general, non-reactive immunoglobulin of the same isotype is included as a negative control for each specific monoclonal antibody used in a particular immunoassay.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

Mouse IgG2a control FITC-conjugated

FITC - conjugated monoclonal antibody

Cat-No: **21275523S**

100 µl

Clone: PPV-04

Specificity: This mouse IgG2a monoclonal antibody (clone PPV-04) reacts with undefined epitope on a plant pathogen.

Negativ Species: Human, Porcine, Mouse and Rat

Isotype subclass: Mouse IgG2a

Form: The purified antibody is conjugated with Fluoresceinisoithiocyanate (FITC) under optimum conditions. The conjugate is purified by size-exclusion chromatography and adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2)

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Do not freeze. Avoid prolonged exposure to light.

Application: Flow Cytrometry, Control Experiments

Background: The specificity of staining by monoclonal antibodies to target antigens should be verified by establishing the amount of non-specific antibody binding. In general, non-reactive immunoglobulin of the same isotype is included as a negative control for each specific monoclonal antibody used in a particular immunoassay.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

Rat IgG2b FITC-conjugated

FITC- conjugated monoclonal antibody TBE 15 to IgG2b

Cat-No: **22225033S**

100 µl

Clone: TBE 15

Specificity: none

Isotype subclass: Rat IgG2b, k

Form: The purified antibody is conjugated with Fluorescein isothiocyanate (FITC) under optimum conditions. The conjugate is purified by size-exclusion chromatography and adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

Annexin V FITC-conjugated

FITC - conjugated recombinant Annexin V

Cat-No: **31490013S**

100µl for 20 tests

please note: store at 4°C

(FITC)-conjugated recombinant chicken Annexin V (AxV) for the detection of phosphatidylserine exposed in the membrane of apoptotic cells. There is a 85 % homology of recombinant chicken Annexin V to the human Annexin V and a 100 % identity in the phosphatidylserine binding sites. Annexin V-FITC binding to PS is Ca^{2+} dependent.

Introduction: Apoptosis and necrosis are the two main forms of cell death. Apoptosis is mostly a physiological process and plays an essential role in the development and homeostasis of all multi-cellular organisms. Apoptosis can be induced by several stimuli like UV- and gamma-irradiation or DNA damaging substances. Apoptotic cells change the structure of their membrane, which leads to the exposure of phosphatidylserine (PS) on the membrane surface. Annexins are ubiquitous homologous proteins that bind phospholipids in the presence of calcium. Since the redistribution of phosphatidylserine from the internal to the external membrane surface represents an early indicator of apoptosis, Annexin V and its conjugates can be used for the detection of apoptosis because they interact strongly and specifically with exposed phosphatidylserine. Detection of apoptotic cells with Annexin V can be achieved earlier than analysis of apoptosis by DNA-based assays.

Buffer/Additives/Preservative: Each vial contains fluorescein conjugated annexin with 0.1 % BSA in PBS.
Preservative: 0.09 % w/v sodium azide.

Application: An early event in apoptosis is the flipping of phosphatidylserine of the plasma membrane from the inside surface to the outside surface. Annexin V binds specifically to phosphatidylserine and FITC-conjugated Annexin V can be used as a fluorescent probe to label apoptotic cells. Binding of Annexin V to the exposed charged head groups of PS is a Ca^{2+} dependent process. Propidium Iodide is used in conjunction with Annexin V-FITC. The cell membrane integrity excludes Propidium Iodide in viable and apoptotic cells, whereas necrotic cells are permeable to Propidium Iodide. Thus dual parameter FACS analysis allows for the discrimination between viable, apoptotic and necrotic cells.

Staining procedure for flow cytometry and fluorescence microscopy:

Wash cells (up to 10^6) in 500 µl binding buffer (PBS with Ca^{2+} = add 0.33 g/l to PBS)
Spin at 250 xg for 5 minutes and discard supernatant,
Resuspend the cell pellet in 70 µl binding buffer,
Add 5 µl of AnnexinV-FITC, incubate 15 minutes at room temperature in the dark.

References:

Savill J, Fadok V, Henson P, Haslett C: Phagocyte recognition of cells undergoing apoptosis. Immunol Today 14:131, 1993; Reutelingsperger CP, van Heerde WL: Annexin V, the regulator of phosphatidylserine-catalyzed inflammation and coagulation during apoptosis. Cell Mol Life Sci 53: 527, 1997; Defrancesco L: Dead Again: Adventures in Apoptosis. The Scientist 13:17, 1999

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD3e PE-conjugated

PE- conjugated monoclonal antibody 145-2C11 to mouse CD3e

Cat-No: **22150034S**

100 µl

Clone: 145-2C11

Specificity: This anti-mouse T3 complex CD3ε monoclonal antibody is specific for a 25 kDa protein component (e-T3) of the antigen specific T cell receptor on all mouse strains tested. The e-T3 protein has been shown to be non-covalently associated with the cell surface ab heterodimer of the CD3 associated complex. This monoclonal antibody reacts with all mature T cells and can both activate and inhibit T cell function. This fact identifies e-T3 as a cell surface protein involved in the transduction of activation signals. All peripheral T cells express this determinant, however, B cells and bone marrow cells have proven to be negative. Although the expression of this particular epitope on peripheral T cells is uniformly high, staining of thymocytes reveals distinct subpopulations of cells differing in the level of expression of this marker. This antibody will prove useful in studying the role of various components of the TCR complex in T cell activation and development, and will allow for the development of an animal model in which to investigate the immunoregulatory effects of in vivo administration of anti-CD3 antibodies, an area of obvious clinical importance.

Isotype subclass: Hamster IgG

Form: The purified antibody is conjugated with R-Phycoerythrin (R-PE) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

References:

1. Flamand, V. et al. 1990. J. of Immunol. **144**: 2875-2882.
2. Salvadori S. et al. 1994. J. of Immunol. **153**: 5176-5182.
3. Denkers, E.Y. et al. 1997. J. of Immunol. **159**: 1903-1908.
4. Brunmark, A. and A.M. O'Rourke. 1997. J. of Immunol. **159**: 1676-1685.
5. Lahvis G.P. and J. Cerny. 1997. J. of Immunol. **159**: 1783-1793.
6. Chao, C. et al. 1997. J. of Immunol. **159**: 1686-1694.
7. Chung, C.D. et al. 1997. J. of Immunol. **159**: 1758-1766.
8. Berg, N.N. and H. L. Ostergaard. 1997. J. of Immunol. **159**: 1753-1757.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD4 PE-conjugated

PE- conjugated monoclonal antibody GK1.5 to mouse CD4

Cat-No: **22850044S**

100 µl

Clone: GK1.5

Specificity: The CD4 (L3/T4) antigen is thought to be the murine equivalent of the human Leu3/OKT4 antigen. This T cell surface molecule appears to be expressed by the helper/inducer subset of murine T cells and by delayed hypersensitivity T cells but not by cytotoxic T cells or their precursors. CD4 (L3/T4) and CD8a (Ly 2) have been shown to be present on mutually exclusive T cells in the peripheral lymphoid organs but the thymus contains cells expressing both CD4 (L3/T4) and CD8a (Ly2). The anti-mouse CD4 (L3/T4) mAb binds to approximately 85% of mouse thymocytes, 20% splenocytes, 50% lymph node cells, and a small number of bone marrow cells. It detects a protein of approximately 52 kDa on SDS-PAGE "Western Blots" (from Con A blast cell membranes) and is therefore similar to a well characterized human Leu3/T4 antigen (4).

Isotype subclass: Rat IgG2b

Form: The purified antibody is conjugated with R-Phycoerythrin (R-PE) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

References:

- 1.) Teijaro, John R., David Verhoeven, Carly A. Page, Damian Turner, and Donna L. Farber. Journal of Virology 84, no. 18 (2010): 9217-9226.
- 2.) Hafalla, Julius Clemence R., Carla Claser, Kevin N. Couper, Georges Emile Grau, Laurent Renia, J. Brian de Souza, and Eleanor M. Riley. PLoS Pathog 8, no. 2 (2012): e1002504.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD8a PE-conjugated

PE- conjugated monoclonal antibody YTS 169.4 to mouse CD8a

Cat-No: **22150084S**

100 µl

Clone: YTS 169.4

Specificity: The anti-CD8a (Ly 2) monoclonal antibody reacts with a protein of approximately 30 kDa found on mouse thymocytes and mouse cytotoxic/suppressor T cells. It does not bind to mouse helper/inducer T cells. It binds to T lymphocytes from all mouse strains regardless of phenotypic expression (ie. reacts with T lymphocytes from mouse strains expressing the Ly 2.1 or Ly 2.2 phenotype.). It can be used to investigate the role of T cells in models for infectious disease, autoimmunity, transplantation tolerance and fundamental aspects of immunology. It can also be useful to identify/ eliminate cytotoxic or suppressor T lymphocytes in vivo or in vitro.

Isotype subclass: Rat IgG2b

Form: The purified antibody is conjugated with R-Phycoerythrin (R-PE) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

References:

- 1.) Moreau J-L, Nabholz M, Diamantstein T, Malek T, Shevach E, Thèze J (1987). Monoclonal Antibodies identify three epitope clusters on the mouse p55 subunit of the interleukin 2 receptor: relationship to the interleukin 2 binding site. *European J. Immunology* 17, 1835-1838.
- 2.) Hashimoto N, Nabholz M, MacDonald HR, Zubler RH (1986). Dissociation of interleukin 2 dependent and independent B cell proliferation with monoclonal anti-interleukin 2 receptor antibody. *European J. Immunology* 16, 317-320.
- 3.) Lowenthal JW, Corthésy P, Tougne C, Lees R, MacDonald HR, Nabholz M (1985). High and low affinity IL-2 receptors: Analysis by IL-2 dissociation rate and reactivity with monoclonal anti-receptor antibody PC61. *J. Immunology* 135, 3988-3994.
- 4.) Ceredig R, Lowenthal JW, Nabholz M, MacDonald HF. (1985) Expression of interleukin-2 receptor as a differentiation marker on intrathymic stem cells. *Nature* 314: 98-100

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD11a PE-conjugated

PE- conjugated monoclonal antibody M17/4 to mouse CD11a

Cat-No: **22850114S**

100 µl

Clone: M17/4

Specificity: The rat monoclonal antibody M17/4 reacts with CD11a, a 180 kDa glycoprotein integrin alpha L, also known as the lymphocyte function associated antigen-1 (LFA-1) alpha chain.

Isotype subclass: Rat IgG2a

Form: The purified antibody is conjugated with R-Phycoerythrin (R-PE) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Purity: > 95% (by SDS-PAGE)

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

Background: CD11a is a 180 kD glycoprotein, also known as α_L integrin, LFA-1 α , Ly-15, or Ly-21. It is a member of the integrin family, primarily expressed on lymphocytes, monocytes/macrophages, and granulocytes. In association with CD18, the CD11a/CD18 complex forms LFA-1. CD11a plays an important role in intercellular adhesion and costimulation by binding its ligands, ICAM-1 (CD54), ICAM-2 (CD102), and ICAM-3 (CD50).

References:

1. Sanchez-Madrid F, et al. 1982. Cell Immunol. 73:1. (IP, Block)
2. Kuhlman P, et al. 1991. J. Immunol. 146:1773. (IP, Block)
3. Mizgerd JP, et al. 1997. J. Exp. Med. 186:1357. (IHC)
4. Hailman E and Allen PM. 2005. J. Immunol. 175:4847. (FC)

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone:+49-(0)4491-400997, fax:+49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD11b PE-conjugated

PE- conjugated monoclonal antibody M1/70.15 to mouse CD11b

Cat-No: **22159114S**

100 µl

Clone: M1/70.15

Specificity: The anti-mouse CD11b (Mac-1; Ly 40) monoclonal antibody is specific for the 170 kDa a subunit of Mac-1 which mediates adhesion to ICAM-1 (CD54) and C3bi. Mac-1 is expressed on granulocytes, macrophages, natural killer cells and B-1 cells in the peritoneal and pleural cavities. Mac-1 is up-regulated on neutrophils after activation. This particular clone blocks cell adherence and C3bi binding but does not block cell mediated lysis.

Isotype subclass: Rat IgG2b

Form: The purified antibody is conjugated with R-Phycoerythrin (R-PE) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow cytometry

Background: CD11b (integrin alphaM subunit) is a 165-170 kDa type I transmembrane glycoprotein that non-covalently associates with integrin beta2 subunit (CD18); expression of the CD11b chain on the cell surface requires the presence of the CD18 antigen. CD11b/CD18 integrin (Mac-1, CR3) is highly expressed on NK cells, neutrophils, monocytes and less on macrophages. CD11b/CD18 integrin is implicated in various adhesive interactions of monocytes, macrophages and granulocytes, facilitating their diapedesis, as well as it mediates the uptake of complement coated particles, serving as a receptor for the iC3b fragment of the third complement component.

References:

1. Springer T, Galfrè G, Secher DS, Milstein C. Eur J Immunol. 1978 Aug;8(8):539-51.
2. Ault KA, Springer TA: J Immunol. 1981 Jan;126(1):359-64.
3. Sanchez-Madrid F, Simon P, Thompson S, Springer TA: J Exp Med. 1983 Aug 1;158(2):586-602.
4. Zhang Y, McCormick LL, Desai SR, Wu C, Gilliam AC: J Immunol. 2002 Mar 15;168(6):3088-98.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone:+49-(0)4491-400997, fax:+49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD19 PE-conjugated

PE- conjugated monoclonal antibody PeCa1 to mouse CD19

Cat-No: **22220194S**

100 µl

Clone: PeCa1

Specificity: The antibody reacts with mouse CD19 antigen.

Isotype subclass: Rat IgG2a, k

Form: The purified antibody is conjugated with R-Phycoerythrin (R-PE) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1% BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-human/ -canine/ -porcine CD29 PE-conjugated

PE- conjugated monoclonal antibody MEM-101A to human CD29

Cat-No: **21270294S**

100 µl

Clone: MEM-101A

Specificity: The antibody MEM-101A reacts with CD29 antigen (Integrin beta 1 chain), a 130 kDa single chain type I glycoprotein expressed as a heterodimer (non-covalently associated with the integrin alpha subunits 1-6). CD29 is broadly expressed on majority of hematopoietic and non-hematopoietic cells (leukocytes, platelets, fibroblasts, endothelial cells, epithelial cells and mast cells).

HLDA VI; WS Code AS A048

Isotype: Mouse IgG1

Species Reactivity: Human, Canine, Porcine

Form: The purified antibody is conjugated with R-Phycoerythrin (R-PE) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1% BSA and 0.09% sodium azide (pH 7.2)

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4° C. Do not freeze. Avoid prolonged exposure to light.

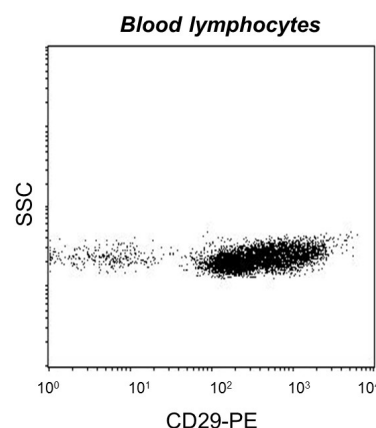
Application: Flow Cytometry

Background: **CD29** (β1 integrin subunit, GPIIa) forms non-covalently linked heterodimers with at least 6 different α chains (α1-α6, CD49a-f) determining the binding properties of β1 (VLA) integrins. These integrins mediate cell adhesion to collagen, fibronectin, laminin and other extracellular matrix (ECM) components. This interaction hinders cell death, whereas disruption of anchorage to ECM leads to apoptosis. Decreased expression of most β1 integrins correlates with acquiring multidrug resistance of tumour cells during selection in presence of antitumour drug. In platelets, translocation of intracellular pool of β1 integrins to the plasma membrane following thrombin stimulation. These integrins are also up-regulated in leukocytes during emigration and extravascular migration and appear to be critically involved in regulating the immune cell trafficking from blood to tissue, as well as in regulating tissue damage and disease symptoms related to inflammatory bowel disease. Through a β1 integrin-dependent mechanism, fibronectin and type I collagen enhance cytokine secretion of human airway smooth muscle in response to IL-1β.

References: Leukocyte Typing VI. Kishimoto T. et al. (Eds.), Garland Publishing Inc. (1997).

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.



Attention! Cells from one healthy individual are shown. Cell Populations and staining intensity may vary interindividually.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
 phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD44 PE-conjugated

PE- conjugated monoclonal antibody KM81 to mouse CD44

Cat-No: **22150444S**

100 µl

Clone: KM81

Specificity: The anti-mouse CD44 (Pgp-1, Ly 24) monoclonal antibody recognizes a 95 kDa glycoprotein found on most hematopoietic cells. It is thought to be important in the regulation of migratory properties of lymphocytes during development and the regulation of the interaction with bone marrow stromal cells during hematopoiesis. CD44 functions as a receptor for hyaluronate, although some cells expressing CD44 do not bind hyaluronate. This antibody has been shown to inhibit the growth of lymphoid and myeloid cells on long term bone marrow cultures. It also blocks the adhesive interactions of B cell hybridomas to a cloned stromal line or to hyaluronate coated dishes.

Isotype subclass: Rat IgG2a

Form: The purified antibody is conjugated with R-Phycoerythrin (R-PE) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

References:

- 1.) Lynch, F., and Ceredig R. Ly-24 (Pgp-1) expression by thymocytes and peripheral T cells. Immunol. Today 9:7.0.
- 2.) Picker, L.J., De Pos Toyos J, Telen MJ et al. Monoclonal antibodies against CD44 [In (Lu)-related P80], and Pgp-1 antigens in man recognize the Hermes class of lymphocyte homing receptors. J. Immunol. 1989; 142:2046-51.
- 3.) Miyake K, Medina K, Hayashi S-I et al. Monoclonal antibodies to Pgp-1/CD44 block lympho-hemopoiesis in long term bone marrow cultures. J. Exp. Med. 1990; 171:477-488.
- 4.) Miyake K, Underhill CB, Lesley J. et al. Hyaluronate can function as a cell adhesion molecule and CD44 participates in hyaluronate recognition. J. Exp. Med 1990; 172:69-75.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone:+49-(0)4491-400997, fax:+49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD45 PE-conjugated

PE- conjugated monoclonal antibody IBL-5/25 to mouse CD45

Cat-No: **22150454S**

100 µl

Clone: IBL-5/25

Specificity: This anti-mouse CD45 monoclonal antibody detects CD45 (L-CA) which is a transmembrane phosphotyrosine phosphatase expressed on leukocytes. This monoclonal antibody induces the in vitro clustering of mouse lymphocytes (both T and B cells).

Isotype subclass: Rat IgG1/k

Form: The purified antibody is conjugated with R-Phycoerythrin (R-PE) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light. Do not freeze.

Application: Flow Cytometry

Background: CD45 (LCA, leukocyte common antigen) is a receptor-type protein tyrosine phosphatase ubiquitously expressed in all nucleated hematopoietic cells, comprising approximately 10% of all surface proteins in lymphocytes. CD45 glycoprotein is crucial in lymphocyte development and antigen signaling, serving as an important regulator of Src-family kinases. CD45 protein exists as multiple isoforms as a result of alternative splicing; these isoforms differ in their extracellular domains, whereas they share identical transmembrane and cytoplasmic domains. These isoforms differ in their ability to translocate into the glycosphingolipid-enriched membrane domains and their expression depends on cell type and physiological state of the cell. Besides the role in immunoreceptor signaling, CD45 is important in promoting cell survival by modulating integrin-mediated signal transduction pathway and is also involved in DNA fragmentation during apoptosis.

References:

- 1.) Balazas M., Horvath G., Balogh P., Simple determination of donor/host origin and donor leukocyte subsets in rat-mouse chimeras. J Immunol. Methods. 1998 218: 117-21
- 2.) Balogh p., Kumanovics A., Juhasz I., Studies on the tissue-related phenotypic heterogeneity of murine B-cells. Dev immunol. 1998 6: 179-85

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone:+49-(0)4491-400997, fax:+49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD45RC PE-conjugated

PE- conjugated monoclonal antibody IBL-8 to mouse CD45RC

Cat-No: **22157454S**

100 µl

Clone: IBL-8

Specificity: CD45 is a transmembrane phosphotyrosine phosphatase expressed on leukocytes. The CD45RC monoclonal antibody is directed against the exon C-dependent RC isoform and reacts strongly with B cells, and less intensely with most CD8+ T cells. It does not recognize CD4+ T cells and myeloid cells do not express the RC isoform.

Isotype subclass: Rat IgG1

Form: The purified antibody is conjugated with R-Phycoerythrin (R-PE) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

References:

*) Czompoly T, Labadi A, Balazs M, Nemeth P, and P Balogh. Use of cyclic peptide phage display library for the identification of a CD45RC epitope expressed on murine B cells and their precursors. Biochemical and Biophysical Research Communications. 2003 307: 791-796

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD48 PE-conjugated

PE- conjugated monoclonal antibody HM48-1 to mouse CD48

Cat-No: **22850484**

500 µl

Clone: HM48-1

Specificity: The monoclonal antibody HM48-1 reacts with the mouse CD48 antigen; also known as BCM1, Blast-1 (human), and OX-45 (rat).

Isotype subclass: Hamster IgG

Form: The purified antibody is conjugated with R-Phycoerythrin (R-PE) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow cytometry

Background: CD48, a member of the SLAM family and Ig superfamily, is a 45 kDa GPI-linked glycoprotein expressed on the majority of hematopoietic cells. Recent publications have reported differential expression of members of the SLAM family including CD48, CD150, and CD244 among functionally distinct bone marrow hematopoietic progenitors providing a useful tool for prediction of the primitiveness of hematopoietic progenitors based on the expression of these SLAM family members. Hematopoietic stem cells (HSC) are highly purified as CD150(+)CD244(-)CD48(-) cells while non-self-renewing multipotent hematopoietic progenitors (MPP) are CD244(+)CD150(-)CD48(-) and the most restricted progenitors are CD48(+)CD244(+)CD150(-). CD48 plays a critical role in adhesion and T cell activation. In the mouse, the primary counter-receptors for CD48 are CD2 and CD244. HM48-1 is reported to modulate in vitro and in vivo CD48 functions including blocking the CD48/CD2 and CD48/CD244 interactions, inhibiting the proliferative response of mitogen-activated spleen cells, providing a costimulation signal for T cells activated in vitro through their TCR, and prolonging cardiac allograft survival in vivo.

References:

1. Chou S, et al. 2013. Exp Hematol. 41:479.
2. Artinger EL, et al. 2013. PNAS. 110:12000

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone:+49-(0)4491-400997, fax:+49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD49d PE-conjugated

PE-conjugated monoclonal antibody R1-2 to CD49d (Mouse)

Cat-No: **22157494S**

100 µl

Clone: R1-2

Specificity: The anti-mouse CD49d monoclonal antibody reacts with $\alpha 4$ integrin, which helps to mediate cell-cell and cell-matrix interactions. $\alpha 4$ integrin combines with $\beta 1$ and $\beta 7$ integrin to form VLA-4 and LPAM-1 (Peyer's patch homing receptor) respectively. VLA-4 is expressed on most peripheral lymphocytes, thymocytes and monocytes. LPAM-1 is found on peripheral lymphocytes, but few thymocytes. Fibronectin and VCAM-1 act as ligands for both VLA-4 and LPAM-1. LPAM-1 also binds the mucosal vascular addressin MAdCAM-1.

Isotype subclass: Rat IgG2b

Form: The purified antibody is conjugated with R-Phycoerythrin (R-PE) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2)

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Do not freeze. Avoid prolonged exposure to light.

Application: Flow Cytometry

References:

- 1.) Berlin, C., E. L. Berg, M. J. Briskin, D. P. Andrew, P. J. Kilshaw, B. Holzmann, I. L. Weissmann, A. Hamann, E. C. Butcher 1993. $\alpha 4 \beta 7$ integrin mediates lymphocyte binding to the mucosal vascular addressin MadCAM-1. *Cell* 70:185-195
- 2.) Holzmann, B., I. L., Weissman 1989. Peyer's patch-specific lymphocyte homing receptor consist of a VLA-4 like α Chain associated with either of two integrin β chains, one of which is novel. *EMBO* 8:1736-1741
- 3.) Holzman, B., B. W. McIntyre, I. W. Weissman 1989. Identification of a murine Peyer's patch lymphocyte homing receptor as an integrin molecule with an α chain homologous to human VLA-4 α . *Cell* 56:37-46

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD54 PE-conjugated

PE-conjugated monoclonal antibody YN1/1.7.4 to mouse CD54

Cat-No: **22270544S**

100 µl

Clone: YN1.7.4

Specificity: The rat monoclonal antibody YN1.7.4 reacts with CD54 (ICAM-1), a 85-110 kDa type I trans-membrane glycoprotein expressed on activated endothelial cells, T lymphocytes, B lymphocytes, monocytes, macrophages, granulocytes and dendritic cells; the expression of CD54 is upregulated by activation.

Isotype subclass: Rat IgG2b

Form: The purified antibody is conjugated with R-Phycoerythrin (R-PE) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

Background: CD54 (ICAM-1) is a member of the C2 subset of immunoglobulin superfamily. It is a trans-membrane molecule with 7 potential N-glycosylated sites, expressed on resting monocytes and endothelial cells and can be upregulated on many other cells, e.g. with lymphokines, on B- and T-lymphocytes, thymocytes, dendritic cells and also on keratinocytes, chondrocytes, as well as epithelial cells. CD54 mediates cell adhesion by binding to integrins CD11a/CD18 (LFA-1) and to CD11b/CD18 (Mac-1). The interaction of CD54 with LFA-1 enhances antigen-specific T-cell activation.

References:

*) Kish, D. D., N. Volokh, et al. (2011). "Hapten application to the skin induces an inflammatory Program directing hapten-primed effector CD8 T cell interaction with hapten-presenting endothelial cells." The Journal of Immunology 186(4): 2117-2126.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD81 (TAPA-1) PE-conjugated

PE- conjugated monoclonal antibody Eat2 to mouse CD81

Cat-No: **22150814S**

100 µl

Clone: Eat2

Specificity: The antibody reacts with the extracellular loops of murine CD81 (TAPA-1) molecule. As a member of the tetraspanin superfamily of cell- surface proteins, CD81 has been linked to the control of cell proliferation, adhesion and motility. CD81 is expressed in higher levels on resting murine B cells than on resting T cells and is functionally active on B cells as it induces homotypic adhesion of B lymphocytes. Unlike human CD81, which is expressed equally on all thymocytes, murine CD81 is upregulated on CD4⁺CD8⁺ thymocytes, then down-regulated again on mature single-positive thymocytes. Murine dendritic cells, splenic macrophages and NK cells all express very high levels of CD81. CD81 has also been involved in the induction of IL-4 secretion from T cells during Th2 immune responses. It has been reported that CD81 expression can also be induced in mature T cells upon activation. This anti-CD81 mAb has been shown to decrease the proliferation of LPS stimulated CD81^{+/+} B cells to levels similar to that of CD81^{-/-} B cells.

Isotype subclass: Hamster IgG

Form: The purified antibody is conjugated with R-Phycoerythrin (R-PE) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light. DO NOT FREEZE.

Application: Flow Cytometry

Background: CD81 (TAPA-1), a member of the tetraspanin family, is expressed on virtually all nucleated cells, but above all on germinal center B cells. CD81 forms complexes with other tetraspanin proteins, integrins, coreceptors, MHC class I and II molecules, and influences adhesion, morphology, activation, proliferation and differentiation of B, T and other cells – e.g. in muscles CD81 promotes cell fusion and myotube maintenance. CD81 has been also identified as a receptor for the hepatitis C virus.

References:

1. Maecker, H. T., et al., 2000. Hybridoma 19:15-22.
2. Maecker, H. T., Todd, S. C., and Levy, S., 1997. Faseb J 11:428-442.
3. Miyazaki, T., Muller, U. and Campbell, K. S., 1997. Embo J 16:4217-4225.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse/rat CD90 (Thy 1.1) PE-conjugated

PE- conjugated monoclonal antibody MRC OX-7 to mouse CD90

Cat-No: **22150904S**

100 µl

Clone: MRC OX-7

Specificity: anti-rat CD90 (Thy 1.1) monoclonal antibody recognizes the Thy 1.1 antigenic determinant, designated CD90 on rat as well as mouse cells. This particular determinant has been defined to be monomorphic within rats but polymorphic in the mouse. This antibody reacts with Thy 1.1 mice (ie. AKR) but not Thy 1.2 mice (ie. CBA, BALB/c). The affinity of the F(ab) of this antibody for rat Thy-1 is $3 \times 10^9 \text{ M}^{-1}$ and for mouse Thy 1.1 is $3 \times 10^8 \text{ M}^{-1}$. The Thy-1 antigen is found on a variety of cell types including thymocytes, neuronal cells (mouse, rat), T and immature B cells (rat), breast epithelial cells (rat) and connective tissue. This antibody has been used to determine that the Thy 1.1 molecule is a glycoprotein with 112 amino acids which is homologous to immunoglobulin domains. The Thy-1 antigen is found on a diversity of cell types and thus it can be used as a cell marker.

Isotype subclass: Mouse IgG1

Form: The purified antibody is conjugated with R-Phycoerythrin (R-PE) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

Background: CD90 (Thy-1) is an 18-35 kDa GPI-anchored plasma membrane glycoprotein expressed in many cell types, such as in hematopoietic cells and neurons, connective tissues, various fibroblast and stromal cell lines, tumor endothelial cell lines and other. In the mouse, CD90 is expressed mainly on thymocytes and peripheral T lymphocytes. It is involved in T cell activation, cellular adhesion, proliferation and migration, neurite outgrowth, wound healing, apoptosis, and fibrosis. CD90 participates in multiple signaling cascades and its effects are tissue- and cell type-specific. It often functions as an important regulator of cell-cell and cell-matrix interactions.

References:

1. Campbell, D.G., Gagnon, J., Reid, K.B.M. and A.F. Williams. (1981) Biochemical J. 195, 15-30.
2. Williams, A.F. and J. Gagnon. (1982) Science 216, 696-703.
3. Neville, D.M. and R.J. Youle. (1982) Immunol. Review 62, 75.
4. Dulbecco, R., Bologna, M. and M. Unga. (1979) Proc. Nat'l. Acad. Sci. 76, 1948.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD117 PE-conjugated

PE- conjugated monoclonal antibody ACK4 to mouse CD117

Cat-No: **22151174S**

100 µl

Clone: ACK4

Specificity: The anti-mouse CD117 monoclonal antibody recognizes the receptor tyrosine kinase, c-kit. The ligand for this receptor is steel factor (stem cell factor), which exists in both soluble and membrane form. The interaction between steel factor and c-kit is essential for the development of hematopoietic, gonadal and pigment stem cells. c-kit positive cells are a subset of CD34+ hematopoietic precursor cells and it is expressed on 5-10% of total adult bone marrow cells.

Isotype subclass: Rat IgG2a

Form: The purified antibody is conjugated with R-Phycoerythrin (R-PE) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

References:

- 1.) Ogawa, M., Y. Matsuzaki, S. Nishikawa, S. Hayashi, T. Kunisada, T. Sudo, T. Kina, H. Nakauchi, S. Nishikawa. 1991. Expression and Function of c-kit in Hematopoietic Progenitor Cells. J. Exp. Med. 174:63-71
- 2.) Suda, T., S. Okada, J. Suda, Y. Miura, M. Ito, T. Sudo, S. Hayashi, S. Nishikawa, H. Nakauchi. 1989. A Stimulatory Effect of Recombinant Murine Interleukin-7 (IL-7) on B-Cell Colony Formation and Inhibitory Effect of IL-1a. Blood 74(6):1936-1941

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD134 PE-conjugated

PE- conjugated monoclonal antibody OX-86 to mouse CD134

Cat-No: **22151344S**

100 µl

Clone: OX-86

Specificity: The anti-mouse CD134 monoclonal antibody detects the mouse OX-40 antigen (CD134) which is a member of the tumor necrosis factor (TNF) receptor/nerve growth factor (NGF) receptor superfamily. The OX-40 antigen is the sole receptor for the OX-40 ligand. This antibody (clone OX-86) labels the OX-40 antigen found on both mouse CD4 and CD8 single positive activated T cells. This is in contrast to rat OX-86 mAb does not block binding of the OX-40L.

Isotype subclass: Rat IgG1

Form: The purified antibody is conjugated with R-Phycoerythrin (R-PE) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

References:

1. Al-Shamkhani A, et al. 1996. Eur. J. Immunol. 26:1695.
2. Weinberg AD, et al. 1999. J. Immunol. 162:1818.
3. Akira H, et al. 1999. J. Immunol. 162:7058.
4. Pippig SD, et al. 1999. J. Immunol. 163:6520.
5. Higgins LM, et al. 1999. J. Immunol. 162:486.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse Erythroid Cell PE-conjugated

PE- conjugated monoclonal antibody TER-119 to mouse Erythroid Cell

Cat-No: **22155234**

500 µl

Clone: TER-119

Specificity: The anti-mouse erythroid cell (Ly-76) mAb is selectively reactive with both fetal and adult erythroid cells. This monoclonal antibody (clone: TER-119) is specific for cells at stages from early proerythroblast to mature erythrocytes. TER-119 is reported to react with 20-25% of bone marrow cells and 2-3% of spleen cells but not with thymocytes or lymph node cells. In fetal haematopoietic tissues, 30-40% of day 10 yolk sac cells, 80-90% of day 14 fetal liver cells and 40-50% of newborn liver cells were reactive with this antibody. TER-119+ cells in adult bone marrow expressed significant levels of CD45 but not myeloid (Mac-1, Gr-1) or B cell (B220) markers. This mAb immunoprecipitated protein bands with molecular weights of 110 kDa, 60 kDa, 52 kDa and 32 kDa from erythrocyte membrane whereas only a 52 kDa band was detected by TER-119 in Western blot analysis. It has been determined that the TER-119 antigen is a molecule associated with cell-surface glycophorin A but not with glycophorin A itself. Also the antigen is only expressed on normal erythroid cells but not on erythroleukaemia cells.

Isotype subclass: Rat IgG2b

Form: The purified antibody is conjugated with R-Phycoerythrin (R-PE) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1% BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

References:

1. Kina, T, Ikuta, K, et al (2000) British Journal of Haematology 109, 280-287.
2. Ikuta, K., Kina, T., et al (1990) Cell, Vol. 62, 863-874.
3. Randall, T. D. and Weissman, I. L. (1998) Stem Cells 16, 38-48.
4. Suwabe, N., Takahashi, S., Nakano, T. and Yamamoto, M. (1998) Blood, Vol 92, No 11, 4108-4118.
5. Mukouyama, Y., et al (1999) Current Biology 9, 833-836.
6. Yanai, N, et al (1999) Experimental Hematology 27, 1087-1096.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse NK-Cells PE-conjugated

PE- conjugated monoclonal antibody PK136 to mouse NK-Cells

Cat-No: **22155254S**

100 µl

Clone: PK136

Specificity: The anti-mouse NK cells monoclonal antibody is specific for recognizing mouse NK cells in selected strains of mice (i.e.C57BL, FVB/N, NZB but not A, AKR, BALB/c, CBA/J, C3H, C57BR, C58, DBA/1, DBA/2, SJL and 129). Clone PK136 is specific for mouse NK1.1, also known as NKR-P1C and Ly 55. Mouse NK1.1 is expressed on NK cells and NKT cells on the following strains: C57BL, FVB/N and NZB. There are published reports that PK136 mAb binds to NKR-PIB on SJL/K NK cells.

Isotype subclass: Mouse IgG2a

Form: The purified antibody is conjugated with R-Phycoerythrin (R-PE) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2)

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

References:

- 1.) Koo, G.C. and Peppard, J.R. 1981. Establishment of monoclonal anti-NK-1.1 antibody, Hybridoma 3:301-303.
- 2.) Koo, G.C., Dumont, F., Hackett, J.Jr., Tutt, M. and Kumar, V. 1986. The NK-1/1(-) mouse: A model to study differentiation of murine NK cells. J. Immunol. 137:3742-3737.
- 3.) Kung, S.K.P., and Miller, R.G. 1985. The NK1.1 antigen in NK-mediated F1 antiparent killing in vitro. J. Immunol. 154:1624.
- 4.) Kung, S.K.P., Ruey-Chyi, S., Shannon, J. and R. Miller. 1999. The NKR-P1B Gene product is an inhibitory receptor on SJL/J NK cells. J. Immunol. 162 (10) 5876.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone:+49-(0)4491-400997, fax:+49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse alpha/beta TCR PE-conjugated

PE- conjugated monoclonal antibody H57-597 to mouse alpha/beta TCR

Cat-No: **22155214S**

100 µl

Clone: H57-597

Specificity: The alpha/beta T cell receptor monoclonal antibody reacts with the surface of all alpha/beta TCR bearing cells and does not react with receptors on gamma/delta TCR positive T cells. This monoclonal antibody when used in an immobilized form was able to activate all alpha/beta TCR bearing T cell hybridomas tested to produce IL-2. Use of this antibody in conjunction with an anti-CD3e monoclonal antibody allows for accurate measurements of the mutually exclusive sub-populations of alpha/beta TCR and gamma/delta TCR bearing T cells. This clone has been reported to work with frozen sections and Western Blotting.

Isotype subclass: Hamster IgG

Form: The purified antibody is conjugated with R-Phycoerythrin (R-PE) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

Background: The antigen-specific T cell receptor (TCR) is composed of either alpha and beta subunit, or gamma and delta subunit. Majority of T cells present in the blood, lymph and secondary lymphoid organs express TCR alpha/beta heterodimers, whereas the T cells expressing TCR gamma/delta heterodimers are localized mainly in epithelial tissues and at the sites of infection. The subunits of TCR heterodimers are covalently bonded and in the endoplasmic reticulum they associate with CD3 subunits to form functional TCR-CD3 complex. Lack of expression of any of the chains is sufficient to stop cell surface expression.

References:

1. Kubo, R.T. Born, et al. 1989. J. of Immunol. 142:2736-2742.
2. Goodman, T., Lefrancois, L. 1989. J. of Exp. Med. 170: 1569-1581.
3. Gross, J.A., E. Callas and J.P. Allison. 1992. J. of Immunol. 149: 380-388.
4. Palathumpat, V. et al. 1992. J. of Immunol. 148: 3319-3326.
5. Paliwal, V. et al. 1997. J. of Immunol. 159: 1718-1727.
6. Skarstein, K. et al. 1994. Immunology. 81:497-501.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone:+49-(0)4491-400997, fax:+49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse gamma/delta TCR PE-conjugated

PE- conjugated monoclonal antibody GL-3 to mouse gamma/delta TCR

Cat-No: **22155224S**

100 µl

Clone: GL-3

Specificity: The anti-mouse gamma/delta T cell receptor monoclonal antibody reacts with the surface on all gamma/delta TCR bearing cells and does not react with receptors on alpha/beta TCR positive cells. It is thought that this clone may be specific for a determinant present on C-delta. The gamma/delta T cell receptors are present on murine CD4⁺CD8⁻ thymocytes, peripheral T cells, intestinal CD8⁺ intraepithelial lymphocytes and Thy 1⁺ dendritic epidermal cells in the skin. Use of this antibody in conjunction with an anti-CD3 monoclonal antibody allows for accurate measurements of the mutually exclusive sub-populations of gamma/delta TCR and alpha/beta TCR bearing T cells. The anti mouse gamma/delta TCR monoclonal antibody has also been used successfully for the characterization of murine intraepithelial lymphocytes.

Isotype subclass: Hamster IgG

Form: The purified antibody is conjugated with R-Phycoerythrin (R-PE) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

Background: The antigen-specific T cell receptor (**TCR**) is composed of either alpha and beta subunit, or gamma and delta subunit. Majority of T cells present in the blood, lymph and secondary lymphoid organs express TCR alpha/beta heterodimers, whereas the T cells expressing TCR gamma/delta heterodimers are localized mainly in epithelial tissues and at the sites of infection. The subunits of TCR heterodimers are covalently bonded and in the endoplasmic reticulum they associate with CD3 subunits to form functional TCR-CD3 complex. Lack of expression of any of the chains is sufficient to stop cell surface expression.

References:

1. Brenner et al. 1986. Nature (Lond.) 322:145.
2. Cron. R & et al. 1988.. J. Immunol. 141:1074.
3. Nakawishii, N.K. et al. 1987. Nature (Lond.) 325:720.
4. Sowder et al. 1988.. J. Exp. Med. 167:315.
5. Goodman, T & L. Lefrancois. 1988. Nature (Lond.) 333:855.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone:+49-(0)4491-400997, fax:+49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse Gr-1 PE-conjugated

PE- conjugated monoclonal antibody RB6-8C5 to mouse Gr-1

Cat-No: **22155244S**

100 µl

Clone: RB6-8C5

Specificity: The anti-mouse Gr-1 monoclonal antibody reacts with the myeloid differentiation antigen GR-1. This 25-30 kDa cell surface antigen is expressed on myeloid cells but not lymphoid or erythroid cells. The expression of the Gr-1 antigen increases with granulocyte maturation as shown by the distinct populations of bone-marrow cells this monoclonal antibody labels: negative, low positive and high positive. Expression is transient on cells of monocytic lineage. The antibody is a useful antibody for studies of myeloid differentiation stages and their regulations by cytokines.

Isotype subclass: Rat IgG2b

Form: The purified antibody is conjugated with R-Phycoerythrin (R-PE) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

References:

- 1.) Spangrude, G.J., et al. Purification and characterization of mouse hematopoietic stem cells. Science 241:58-62, 1991.
- 2.) Muller, C. E. et al. Isolation of two early B lymphocyte progenitors from mouse marrow: a committed pre-pre-B cell and a clonogenic thy-1 lo hematopoietic stem cell. Cell 44:653-662.
- 3.) H. Kjetil et al. Characterization and regulation of RB6-8C5 antigen expression on murine bone marrow cells. 1991. J. Immunol. 147: 22-28.
- 4.) Brummer, Elmer et al. Immunological activation of polymorphonuclear neutrophils for fungal killing: Studies with murine cells and blastomyces dermatitidis in vitro. J. Leuko. Bio 36:505-520, 1984.
- 5.) Jutila, M.A. et al. Ly-6C is a monocyte/macrophage and endothelial cell differentiation antigen regulated by Interferon-gamma. J. Immunol. 18: 1819-1826, 1988.
- 6.) Whiteland, J. L. et al (1995). Immunohistochemical detection of T cell subsets and other leukocytes in paraffin embedded rat and mouse tissues with monoclonal antibodies, J.Histochem. Cytochem. 43:313-320.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone:+49-(0)4491-400997, fax:+49-(0)4491-400998, info@immunotools.com
www.immunotools.com

Mouse IgG1 control PE-conjugated

PE -conjugated monoclonal antibody

Cat-No: **21275514S**

100 µl

Clone: PPV-06

Specificity: This mouse IgG1 monoclonal antibody (clone PPV-06) reacts with undefined epitope on a plant pathogen.

Negativ Species: Human, Porcine, Mouse and Rat

Isotype subclass: Mouse IgG1

Form: The purified antibody is conjugated with R-Phycoerythrin (R-PE) under optimum conditions. The conjugate is purified by size-exclusion chromatography and adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Do not freeze. Avoid prolonged exposure to light.

Application: Flow Cytometry; Control Experiments

Background: The specificity of staining by monoclonal antibodies to target antigens should be verified by establishing the amount of non-specific antibody binding.

In general, non-reactive immunoglobulin of the same isotype is included as a negative control for each specific monoclonal antibody used in a particular immunoassay.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

Mouse IgG2a control PE-conjugated

PE -conjugated monoclonal antibody

Cat-No: **21275524S**

100 µl

Clone: PPV-04

Specificity: This mouse IgG2a monoclonal antibody (clone PPV-04) reacts with undefined epitope on a plant pathogen.

Negativ Species: Human, Porcine, Mouse and Rat

Isotype subclass: Mouse IgG2a

Form: The purified antibody is conjugated with R-Phycoerythrin (R-PE) under optimum conditions. The conjugate is purified by size-exclusion chromatography and adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Do not freeze. Avoid prolonged exposure to light.

Application: Flow Cytometry; Control Experiments

Background: The specificity of staining by monoclonal antibodies to target antigens should be verified by establishing the amount of non-specific antibody binding.

In general, non-reactive immunoglobulin of the same isotype is included as a negative control for each specific monoclonal antibody used in a particular immunoassay.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

Rat IgG2b PE-conjugated

PE- conjugated monoclonal antibody TBE 15 to IgG2b

Cat-No: **22225034S**

100 µl

Clone: TBE 15

Specificity: none

Isotype subclass: Rat IgG2b, k

Form: The purified antibody is conjugated with R-Phycoerythrin (R-PE) under optimum conditions. The conjugate is purified by size-exclusion chromatography and adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1% BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

Annexin V PE-conjugated

PE - conjugated recombinant Annexin V

Cat-No: **31490014S**

100µl for 20 tests

please note: store at 4°C

(R-PE)-conjugated recombinant chicken Annexin V (AxV) for the detection of phosphatidylserine exposed in the membrane of apoptotic cells. There is a 85 % homology of recombinant chicken Annexin V to the human Annexin V and a 100 % identity in the phosphatidylserine binding sites. Annexin V-PE binding to PS is Ca^{2+} dependent.

Introduction: Apoptosis and necrosis are the two main forms of cell death. Apoptosis is mostly a physiological process and plays an essential role in the development and homeostasis of all multi-cellular organisms. Apoptosis can be induced by several stimuli like UV- and gamma-irradiation or DNA damaging substances. Apoptotic cells change the structure of their membrane, which leads to the exposure of phosphatidylserine (PS) on the membrane surface. Annexins are ubiquitous homologous proteins that bind phospholipids in the presence of calcium. Since the redistribution of phosphatidylserine from the internal to the external membrane surface represents an early indicator of apoptosis, Annexin V and its conjugates can be used for the detection of apoptosis because they interact strongly and specifically with exposed phosphatidylserine. Detection of apoptotic cells with Annexin V can be achieved earlier than analysis of apoptosis by DNA-based assays.

Buffer/Additives/Preservative: Each vial contains fluorescein conjugated annexin with 0.1 % BSA in PBS. Preservative: 0.09 % w/v sodium azide.

Application: An early event in apoptosis is the flipping of phosphatidylserine of the plasma membrane from the inside surface to the outside surface. Annexin V binds specifically to phosphatidylserine and R-PE-conjugated Annexin V can be used as a fluorescent probe to label apoptotic cells. Binding of Annexin V to the exposed charged head groups of PS is a Ca^{2+} dependent process. Propidium iodide is used in conjunction with Annexin V-PE. The cell membrane integrity excludes Propidium iodide in viable and apoptotic cells, whereas necrotic cells are permeable to Propidium iodide. Thus dual parameter FACS analysis allows for the discrimination between viable, apoptotic and necrotic cells.

Staining procedure for flow cytometry and fluorescence microscopy:

Wash cells (up to 10^6) in 500 µl binding buffer (PBS with Ca^{2+} = add 0.33 g/l to PBS)
Spin at 250 xg for 5 minutes and discard supernatant,
Resuspend the cell pellet in 70 µl binding buffer,
Add 5 µl of AnnexinV-PE, incubate 15 minutes at room temperature in the dark.

References:

Savill J, Fadok V, Henson P, Haslett C: Phagocyte recognition of cells undergoing apoptosis. Immunol Today 14:131, 1993; Reutelingsperger CP, van Heerde WL: Annexin V, the regulator of phosphatidylserine-catalyzed inflammation and coagulation during apoptosis. Cell Mol Life Sci 53: 527, 1997; Defrancesco L: Dead Again: Adventures in Apoptosis. The Scientist 13:17, 1999

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone:+49-(0)4491-400997, fax:+49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD4 APC-conjugated

APC- conjugated monoclonal antibody YTS 191.1.2 to mouse CD4

Cat-No: **22150046S**

100 µl

Clone: YTS 191.1.2

Specificity: The CD4 (L3/T4) antigen is thought to be the murine equivalent of the human Leu3/OKT4 antigen. This T cell surface molecule appears to be expressed by the helper/inducer subset of murine T cells and by delayed hypersensitivity T cells but not by cytotoxic T cells or their precursors. CD4 (L3/T4) and CD8a (Ly 2) have been shown to be present on mutually exclusive T cells in the peripheral lymphoid organs but the thymus contains cells expressing both CD4 (L3/T4) and CD8a (Ly2). The anti-mouse CD4 (L3/T4) mAb binds to approximately 85% of mouse thymocytes, 20% splenocytes, 50% lymph node cells, and a small number of bone marrow cells. It detects a protein of approximately 52 kDa on SDS-PAGE "Western Blots" (from Con A blast cell membranes) and is therefore similar to a well characterized human Leu3/T4 antigen.

Isotype subclass: Rat IgG2b

Form: The purified antibody is conjugated with cross-linked Allophycocyanin (APC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

References:

- 1.) Cobbold S.P., Martin G., Lovat P.C., & Waldmann H., 8th International Conference on Lymphatic Tissues and Germinal Centres. Plenum Press (Ed. Klaus G.) in press (1984) Immunosuppression with monoclonal antibodies - rules for effective serotherapy.
- 2.) Agel N.M. et al, (1984) J. Immunol. Methods. Immunohistological Screening in the selection of monoclonal antibodies: the use of isotype specific antiglobulins. 69, 207-214.
- 3.) Dialynas D.P. et al, (1983) J. Immunol. Characterization of the murine T cell surface antigen designated L3/T4, identified by monoclonal antibody GK1.5. Similarity of L3/T4 to human Leu3/T4 molecule. U131U, 2445-2451.
- 4.) Mueller, R. et al (1997) J. of Immunol. 159: 1599-1603. IL-4 Expression by Grafts from Transgenic Mice Fails to Prevent Allograft Rejection.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD8a APC-conjugated

APC- conjugated monoclonal antibody YTS 169.4 to mouse CD8a

Cat-No: **22150086S**

100 µl

Clone: YTS 169.4

Specificity: The anti-CD8a (Ly 2) monoclonal antibody reacts with a protein of approximately 30 kDa found on mouse thymocytes and mouse cytotoxic/suppressor T cells. It does not bind to mouse helper/inducer T cells. It binds to T lymphocytes from all mouse strains regardless of phenotypic expression (ie. reacts with T lymphocytes from mouse strains expressing the Ly 2.1 or Ly 2.2 phenotype.). It can be used to investigate the role of T cells in models for infectious disease, autoimmunity, transplantation tolerance and fundamental aspects of immunology. It can also be useful to identify/ eliminate cytotoxic or suppressor T lymphocytes in vivo or in vitro.

Isotype subclass: Rat IgG2b

Form: The purified antibody is conjugated with cross-linked Allophycocyanin (APC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

References:

- 1.) Moreau J-L, Nabholz M, Diamantstein T, Malek T, Shevach E, Thèze J (1987). Monoclonal Antibodies identify three epitope clusters on the mouse p55 subunit of the interleukin 2 receptor: relationship to the interleukin 2 binding site. *European J. Immunology* 17, 1835-1838.
- 2.) Hashimoto N, Nabholz M, MacDonald HR, Zubler RH (1986). Dissociation of interleukin 2 dependent and independent B cell proliferation with monoclonal anti-interleukin 2 receptor antibody. *European J. Immunology* 16, 317-320.
- 3.) Lowenthal JW, Corthésy P, Tougne C, Lees R, MacDonald HR, Nabholz M (1985). High and low affinity IL-2 receptors: Analysis by IL-2 dissociation rate and reactivity with monoclonal anti-receptor antibody PC61. *J. Immunology* 135, 3988-3994.
- 4.) Ceredig R, Lowenthal JW, Nabholz M, MacDonald HF. (1985) Expression of interleukin-2 receptor as a differentiation marker on intrathymic stem cells. *Nature* 314: 98-100

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD11a APC-conjugated

APC- conjugated monoclonal antibody M17/4 to mouse CD11a

Cat-No: **22850116S**

100 µl

Clone: M17/4

Specificity: The rat monoclonal antibody M17/4 reacts with CD11a, a 180 kDa glycoprotein integrin alpha L, also known as the lymphocyte function associated antigen-1 (LFA-1) alpha chain.

Isotype subclass: Rat IgG2a

Form: The purified antibody is conjugated with cross-linked Allophycocyanin (APC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Purity: > 95% (by SDS-PAGE)

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

Background: CD11a is a 180 kD glycoprotein, also known as α_L integrin, LFA-1 α , Ly-15, or Ly-21. It is a member of the integrin family, primarily expressed on lymphocytes, monocytes/macrophages, and granulocytes. In association with CD18, the CD11a/CD18 complex forms LFA-1. CD11a plays an important role in intercellular adhesion and costimulation by binding its ligands, ICAM-1 (CD54), ICAM-2 (CD102), and ICAM-3 (CD50).

References:

1. Sanchez-Madrid F, et al. 1982. Cell Immunol. 73:1. (IP, Block)
2. Kuhlman P, et al. 1991. J. Immunol. 146:1773. (IP, Block)
3. Mizgerd JP, et al. 1997. J. Exp. Med. 186:1357. (IHC)
4. Hailman E and Allen PM. 2005. J. Immunol. 175:4847. (FC)

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone:+49-(0)4491-400997, fax:+49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD11b APC-conjugated

APC- conjugated monoclonal antibody M1/70.15 to mouse CD11b

Cat-No: **22159116S**

100 µl

Clone: M1/70.15

Specificity: The anti-mouse CD11b (Mac-1; Ly 40) monoclonal antibody is specific for the 170 kDa a subunit of Mac-1 which mediates adhesion to ICAM-1 (CD54) and C3bi. Mac-1 is expressed on granulocytes, macrophages, natural killer cells and B-1 cells in the peritoneal and pleural cavities. Mac-1 is up-regulated on neutrophils after activation. This particular clone blocks cell adherence and C3bi binding but does not block cell mediated lysis.

Isotype subclass: Rat IgG2b

Form: The purified antibody is conjugated with cross-linked Allophycocyanin (APC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow cytometry

Background: CD11b (integrin alphaM subunit) is a 165-170 kDa type I transmembrane glycoprotein that non-covalently associates with integrin beta2 subunit (CD18); expression of the CD11b chain on the cell surface requires the presence of the CD18 antigen. CD11b/CD18 integrin (Mac-1, CR3) is highly expressed on NK cells, neutrophils, monocytes and less on macrophages. CD11b/CD18 integrin is implicated in various adhesive interactions of monocytes, macrophages and granulocytes, facilitating their diapedesis, as well as it mediates the uptake of complement coated particles, serving as a receptor for the iC3b fragment of the third complement component.

References:

1. Springer T, Galfrè G, Secher DS, Milstein C. Eur J Immunol. 1978 Aug;8(8):539-51.
2. Ault KA, Springer TA: J Immunol. 1981 Jan;126(1):359-64.
3. Sanchez-Madrid F, Simon P, Thompson S, Springer TA: J Exp Med. 1983 Aug 1;158(2):586-602.
4. Zhang Y, McCormick LL, Desai SR, Wu C, Gilliam AC: J Immunol. 2002 Mar 15;168(6):3088-98.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone:+49-(0)4491-400997, fax:+49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD19 APC-conjugated

APC- conjugated monoclonal antibody 1D3 to mouse CD19

Cat-No: **22270196S**

100 µl

Clone: 1D3

Specificity: The rat monoclonal antibody 1D3 detects mouse CD19, 95 kDa type I transmembrane glycoprotein (immunoglobulin superfamily) expressed on B lymphocytes and follicular dendritic cells; it is lost on plasma cells.

Isotype subclass: Rat IgG2a

Form: The purified antibody is conjugated with cross-linked Allophycocyanin (APC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

Background: CD19 is a transmembrane glycoprotein of Ig superfamily expressed by B cells from the time of heavy chain rearrangement until plasma cell differentiation. It forms a tetrameric complex with CD21 (complement receptor type 2), CD81 (TAPA-1) and Leu13. Together with BCR (B cell antigen receptor), this complex signals to decrease B cell threshold for activation by the antigen. Besides being signal-amplifying coreceptor for BCR, CD19 can also signal independently of BCR coligation and it turns out to be a central regulatory component upon which multiple signaling pathways converge. Mutation of the CD19 gene results in hypogammaglobulinemia, whereas CD19 overexpression causes B cell hyperactivity.

References:

- 1.) Purtha WE, Tedder TF, et al. (2011) "Memory B cells, but not long-lived plasma cells, possess antigen specificities for viral escape mutants." J Exp Med. 2011 Dec 19; 208(13):2599-606.
- 2.) Erickson, J.J., P. Gilchuk, et al. (2012). "Viral acute lower respiratory infections impair CD8+ T cells through PD-1." The Journal of Clinical Investigation 122(8): 2967-2982

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD25 APC-conjugated

APC- conjugated monoclonal antibody PC61.5.3 to mouse CD25

Cat-No: **22150256S**

100 µl

Clone: PC61.5.3

Specificity: The anti-mouse CD25 (IL-2R) monoclonal antibody reacts with the low affinity alpha chain of the interleukin-2 receptor antigen present on activated T and B cells in mice. The antibody inhibits IL-2 binding and IL-2 dependent proliferation.

Isotype subclass: Rat IgG1

Form: The purified antibody is conjugated with cross-linked Allophycocyanin (APC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

Background: CD25 (IL2Ralpha, Tac) is a ligand-binding alpha subunit of interleukin 2 receptor (IL2R). Together with beta and gamma subunit CD25 constitutes the high affinity IL2R, whereas CD25 alone serves as the low affinity IL2R. CD25 expression rapidly increases upon T cell activation. The 55 kDa CD25 molecule is enzymatically cleaved and shed from the cell surface as a soluble 45 kDa s-Tac, whose concentration in serum can be used as a marker of T cell activation. Expression of CD25 indicates the neoplastic phenotype of mast cells. CD25+ CD4+ FoxP3+ regulatory cells (Treg cells) play a crucial role in the control of organ-specific autoimmune diseases.

References:

- 1.) Hashimoto N, Nabholz M, MacDonald HR, Zubler RH (1986). Dissociation of interleukin 2 dependent and independent B cell proliferation with monoclonal anti-interleukin 2 receptor antibody. European J. Immunology 16, 317-320.
- 2.) Lowenthal JW, Corthésy P, Tougne C, Lees R, MacDonald HR, Nabholz M (1985). High and low affinity IL-2 receptors: Analysis by IL-2 dissociation rate and reactivity with monoclonal anti-receptor antibody PC61. J. Immunology 135, 3988-3994.
- 3.) Ceredig R, Lowenthal JW, Nabholz M, MacDonald HF. (1985) Expression of interleukin-2 receptor as a differentiation marker on intrathymic stem cells. Nature 314: 98-100

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-human/ -canine/ -porcine CD29 APC-conjugated

APC- conjugated monoclonal antibody MEM-101A to human CD29

Cat-No: **21270296S**

100 µl

Clone: MEM-101A

Specificity: The antibody MEM-101A reacts with CD29 antigen (Integrin beta 1 chain), a 130 kDa single chain type I glycoprotein expressed as a heterodimer (non-covalently associated with the integrin alpha subunits 1-6). CD29 is broadly expressed on majority of hematopoietic and non-hematopoietic cells (leukocytes, platelets, fibroblasts, endothelial cells, epithelial cells and mast cells).

HLDA VI; WS Code AS A048

Isotype: Mouse IgG1

Species Reactivity: Human, Canine, Porcine

Form: The purified antibody is conjugated with cross-linked Allophycocyanin (APC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1% BSA and 0.09% sodium azide (pH 7.2)

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4° C. Do not freeze. Avoid prolonged exposure to light.

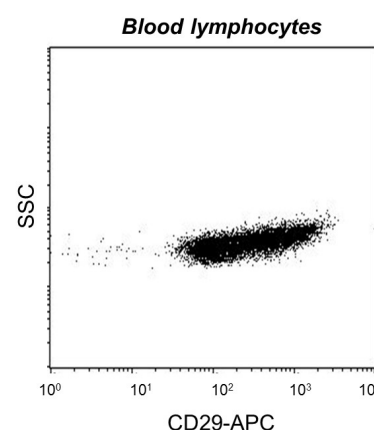
Application: Flow Cytometry

Background: **CD29** (β1 integrin subunit, GPIIa) forms non-covalently linked heterodimers with at least 6 different α chains (α1-α6, CD49a-f) determining the binding properties of β1 (VLA) integrins. These integrins mediate cell adhesion to collagen, fibronectin, laminin and other extracellular matrix (ECM) components. This interaction hinders cell death, whereas disruption of anchorage to ECM leads to apoptosis. Decreased expression of most β1 integrins correlates with acquiring multidrug resistance of tumour cells during selection in presence of antitumour drug. In platelets, translocation of intracellular pool of β1 integrins to the plasma membrane following thrombin stimulation. These integrins are also up-regulated in leukocytes during emigration and extravascular migration and appear to be critically involved in regulating the immune cell trafficking from blood to tissue, as well as in regulating tissue damage and disease symptoms related to inflammatory bowel disease. Through a β1 integrin-dependent mechanism, fibronectin and type I collagen enhance cytokine secretion of human airway smooth muscle in response to IL-1β.

References: Leukocyte Typing VI. Kishimoto T. et al. (Eds.), Garland Publishing Inc. (1997).

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.



Attention! Cells from one healthy individual are shown. Cell Populations and staining intensity may vary interindividually.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-human/anti mouse CD44 APC-conjugated

APC - conjugated monoclonal antibody to CD44 (human, mouse)

Cat-No: **21850446S**

100 µl

Clone: IM7

Specificity: The IM7 monoclonal antibody reacts with all isoforms of mouse CD44 (Pgp-1). CD44 is expressed by hematopoietic and non-hematopoietic cells. Bone marrow myeloid cells and memory T cells highly express this antigen and peripheral B and T cells can upregulate the expression of CD44. CD44 functions as an adhesion molecule through its binding to hyaluronate, an extracellular matrix component.

Isotype subclass: Rat IgG2b

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2)

Form: The purified antibody is conjugated with cross-linked Allophycocyanin (APC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow cytometry

References:

- 1.) Lesley, J. and I. S. Trowbridge 1982. Genetic characterization of a polymorphic murine cell-surface glycoprotein. Immunogenetics 15(3): 313-20.
- 2.) Maiti A, Maki G, Johnson P. TNF-alpha induction of CD44-mediated leukocyte adhesion by sulfation. Science. 1998. Oct 30;282(5390):941-3.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD45 APC-conjugated

APC- conjugated monoclonal antibody IBL-5/25 to mouse CD45

Cat-No: **22150456S**

100 µl

Clone: IBL-5/25

Specificity: This anti-mouse CD45 monoclonal antibody detects CD45 (L-CA) which is a transmembrane phosphotyrosine phosphatase expressed on leukocytes. This monoclonal antibody induces the in vitro clustering of mouse lymphocytes (both T and B cells).

Isotype subclass: Rat IgG1/k

Form: The purified antibody is conjugated with cross-linked Allophycocyanin (APC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

Background: CD45 (LCA, leukocyte common antigen) is a receptor-type protein tyrosine phosphatase ubiquitously expressed in all nucleated hematopoietic cells, comprising approximately 10% of all surface proteins in lymphocytes. CD45 glycoprotein is crucial in lymphocyte development and antigen signaling, serving as an important regulator of Src-family kinases. CD45 protein exists as multiple isoforms as a result of alternative splicing; these isoforms differ in their extracellular domains, whereas they share identical transmembrane and cytoplasmic domains. These isoforms differ in their ability to translocate into the glycosphingolipid-enriched membrane domains and their expression depends on cell type and physiological state of the cell. Besides the role in immunoreceptor signaling, CD45 is important in promoting cell survival by modulating integrin-mediated signal transduction pathway and is also involved in DNA fragmentation during apoptosis.

References:

- 1.) Balazas M., Horvath G., Balogh P. Simple determination for donor/host origin and donor leukocyte subsets in rat-mous chimeras. *Jimmunol Methods*. 1998 **218**:117-21.
- 2.) Balogh P., Kumanovics A., Juhasz I. Studies on the tissue-related phenotypic heterogeneity of murine Bcells. *Dev Immunol*. 1998 **6**: 179-85.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone:+49-(0)4491-400997, fax:+49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD48 APC-conjugated

APC- conjugated monoclonal antibody HM48-1 to mouse CD48

Cat-No: **22850486S**

100 µl

Clone: HM48-1

Specificity: The monoclonal antibody HM48-1 reacts with the mouse CD48 antigen; also known as BCM1, Blast-1 (human), and OX-45 (rat).

Isotype subclass: Hamster IgG

Form: The purified antibody is conjugated with cross-linked Allophycocyanin (APC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow cytometry

Background: CD48, a member of the SLAM family and Ig superfamily, is a 45 kDa GPI-linked glycoprotein expressed on the majority of hematopoietic cells. Recent publications have reported differential expression of members of the SLAM family including CD48, CD150, and CD244 among functionally distinct bone marrow hematopoietic progenitors providing a useful tool for prediction of the primitiveness of hematopoietic progenitors based on the expression of these SLAM family members. Hematopoietic stem cells (HSC) are highly purified as CD150(+)CD244(-)CD48(-) cells while non-self-renewing multipotent hematopoietic progenitors (MPP) are CD244(+)CD150(-)CD48(-) and the most restricted progenitors are CD48(+)CD244(+)CD150(-). CD48 plays a critical role in adhesion and T cell activation. In the mouse, the primary counter-receptors for CD48 are CD2 and CD244. HM48-1 is reported to modulate in vitro and in vivo CD48 functions including blocking the CD48/CD2 and CD48/CD244 interactions, inhibiting the proliferative response of mitogen-activated spleen cells, providing a costimulation signal for T cells activated in vitro through their TCR, and prolonging cardiac allograft survival in vivo.

References:

1. Chou S, et al. 2013. Exp Hematol. 41:479.
2. Artinger EL, et al. 2013. PNAS. 110:12000

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone:+49-(0)4491-400997, fax:+49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD49d APC-conjugated

APC-conjugated monoclonal antibody R1-2 to CD49d (Mouse)

Cat-No: **22157496S**

100 µl

Clone: R1-2

Specificity: The anti-mouse CD49d monoclonal antibody reacts with $\alpha 4$ integrin, which helps to mediate cell-cell and cell-matrix interactions. $\alpha 4$ integrin combines with $\beta 1$ and $\beta 7$ integrin to form VLA-4 and LPAM-1 (Peyers patch homing receptor) respectively. VLA-4 is expressed on most peripheral lymphocytes, thymocytes and monocytes. LPAM-1 is found on peripheral lymphocytes, but few thymocytes. Fibronectin and VCAM-1 act as ligands for both VLA-4 and LPAM-1. LPAM-1 also binds the mucosal vascular addressin MAdCAM-1.

Isotype subclass: Rat IgG2b

Form: The purified antibody is conjugated with cross-linked Allophycocyanin (APC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2)

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Do not freeze. Avoid prolonged exposure to light.

Application: Flow Cytometry

References:

- 1.) Berlin, C., E. L. Berg, M. J. Briskin, D. P. Andrew, P. J. Kilshaw, B. Holzmann, I. L. Weissmann, A. Hamann, E. C. Butcher 1993. $\alpha 4 \beta 7$ integrin mediates lymphocyte binding to the mucosal vascular addressin MAdCAM-1. Cell 70:185-195
- 2.) Holzmann, B., I. L., Weissman 1989. Peyer's patch-specific lymphocyte homing receptor consist of a VLA-4 like α Chain associated with either of two integrin β chains, one of which is novel. EMBO 8:1736-1741
- 3.) Holzman, B., B. W. McIntyre, I. W. Weissman 1989. Identification of a murine Peyer's patch lymphocyte homing receptor as an integrin molecule with an α chain homologous to human VLA-4 α . Cell 56:37-46

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD54 APC-conjugated

APC-conjugated monoclonal antibody YN1/1.7.4 to mouse CD54

Cat-No: **22270546S**

100 µl

Clone: YN1.7.4

Specificity: The rat monoclonal antibody YN1.7.4 reacts with CD54 (ICAM-1), a 85-110 kDa type I trans-membrane glycoprotein expressed on activated endothelial cells, T lymphocytes, B lymphocytes, monocytes, macrophages, granulocytes and dendritic cells; the expression of CD54 is upregulated by activation.

Isotype subclass: Rat IgG2b

Form: The purified antibody is conjugated with cross-linked Allophycocyanin (APC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

Background: CD54 (ICAM-1) is a member of the C2 subset of immunoglobulin superfamily. It is a trans-membrane molecule with 7 potential N-glycosylated sites, expressed on resting monocytes and endothelial cells and can be upregulated on many other cells, e.g. with lymphokines, on B- and T-lymphocytes, thymocytes, dendritic cells and also on keratinocytes, chondrocytes, as well as epithelial cells. CD54 mediates cell adhesion by binding to integrins CD11a/CD18 (LFA-1) and to CD11b/CD18 (Mac-1). The interaction of CD54 with LFA-1 enhances antigen-specific T-cell activation.

References:

*) Kish, D. D., N. Volokh, et al. (2011). "Hapten application to the skin induces an inflammatory Program directing hapten-primed effector CD8 T cell interaction with hapten-presenting endothelial cells." The Journal of Immunology 186(4): 2117-2126.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD62L APC conjugated

APC- conjugated monoclonal antibody MEL-14 to mouse CD62L

Cat-No: **22159626S**

100 µl

Clone: MEL-14

Specificity: The anti-mouse CD62L (L-selectin Ly 22) monoclonal antibody reacts with a 90 kDa protein which is involved with the homing of lymphocytes to peripheral lymph nodes. L-selectin is expressed on most T and B lymphocytes, neutrophils, monocytes, eosinophils. Pre-incubation of lymphocytes with this antibody completely and specifically blocks binding of lymphocytes to high endothelial venules (HEV) in vitro and the migration of lymphocytes to lymph nodes in vivo. Polymorphonuclear cells preincubated with this antibody do not migrate to the inflammatory foci.

Isotype subclass: Rat IgG2a

Form: The purified antibody is conjugated with cross-linked Allophycocyanin (APC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

Background: CD62L (L-selectin) is an adhesion glycoprotein that is constitutively expressed on the cell surface of most T and B lymphocytes, neutrophils, monocytes, eosinophils and mediates their homing to inflammatory sites and peripheral lymph nodes by enabling rolling along the venular wall. CD62L is also involved in activation-induced neutrophil aggregation. Activation-dependent CD62L shedding, however, counteracts neutrophil rolling. CD62L has also signaling roles including enhance of chemokine receptor expression. Similarly to CD62P, the major ligand of CD62L is PSGL-1 (P-selectin glycoprotein ligand-1).

References:

Fink, P., W. Gallatin, R. Reichert, et al. 1985. Nature 313: 233-235
 Gallatin, W. M., I.L. Weissman., E.C. Butcher 1983. Nature 304:30-34
 Lewinsohn, D.M., R.F. Bargatze, E.C. Butcher 1987. J.Immunology 138:4313-4321
 Reichert, R., M. Gallatin, E. Butcher, et al. 1984. Cell 38: 89-99
 Siegelman, M., I.C. Cheng, I.L. Weissman, et al. 1990. Cell 61: 611-622
 Jalkanen, S., R.F. Bargatze, J. Toyos, et al. 1987. J. of Cell Biol. 105: 983-990
 Göler M.L et al. 1997. J. of Immunol. 159: 1767-1774

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
 phone:+49-(0)4491-400997, fax:+49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse CD86 APC-conjugated

APC-conjugated Monoclonal Antibody GL-1 to mouse CD86

Cat-No: **22270866S**

100 µl

Clone: GL-1

Specificity: The rat monoclonal antibody GL-1 reacts with CD86 (B7-2), a 70-80 kDa type I transmembrane glycoprotein of immunoglobulin supergene family, expressed on professional antigen-presenting cells, such as dendritic cells, macrophages or activated B lymphocytes.

Isotype subclass: Rat IgG2a

Form: The purified antibody is conjugated with cross-linked Allophycocyanin (APC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1% BSA and 0.09% sodium azide (pH 7.2)

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

Background: CD80 (B7-1) and CD86 (B7-2) are ligands of T cell critical costimulatory molecule CD28 and of an inhibitory receptor CTLA-4 (CD152). The both B7 molecules are expressed on professional antigen-presenting cells and are essential for T cell activation, the both molecules can also substitute for each other in this process. The question what are the differences in CD80 and CD86 competency has not been fully elucidated yet; there are still conflicts in results about their respective roles in initiation or sustaining of the T cell immune response.

References:

1. Chung JB and others: J Immunol. 2003 Aug 15;171(4):1758-67.
2. Steptoe RJ and others: Diabetes. 2005 Feb;54(2):434-42.
3. Nolan A and others: PLoS One. 2009 Aug 12;4(8):e6600.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone:+49-(0)4491-400997, fax:+49-(0)4491-400998, info@immunotools.com
www.immunotools.com

anti-mouse NK-Cells APC-conjugated

APC- conjugated monoclonal antibody PK136 to mouse NK-Cells

Cat-No: **22155256S**

100 µl

Clone: PK136

Specificity: The anti-mouse NK cells monoclonal antibody is specific for recognizing mouse NK cells in selected strains of mice (i.e.C57BL, FVB/N, NZB but not A, AKR, BALB/c, CBA/J, C3H, C57BR, C58, DBA/1, DBA/2, SJL and 129). Clone PK136 is specific for mouse NK1.1, also known as NKR-P1C and Ly 55. Mouse NK1.1 is expressed on NK cells and NKT cells on the following strains: C57BL, FVB/N and NZB. There are published reports that PK136 mAb binds to NKR-PIB on SJL/K NK cells.

Isotype subclass: Mouse IgG2a

Form: The purified antibody is conjugated with cross-linked Allophycocyanin (APC) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2)

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

References:

1. Koo, G.C. and Peppard, J.R. 1981. Establishment of monoclonal anti-NK-1.1 antibody, Hybridoma 3:301-303.
- 2) Koo, G.C., Dumont, F., Hackett, J.Jr., Tutt, M. and Kumar, V. 1986. The NK-1/1(-) mouse: A model to study differentiation of murine NK cells. J. Immunol. 137:3742-3737.
- 3) Kung, S.K.P., and Miller, R.G. 1985. The NK1.1 antigen in NK-mediated F1 antiparent killing in vitro. J. Immunol. 154:1624.
- 4) Kung, S.K.P., Ruey-Chyi, S., Shannon, J. and R. Miller. 1999. The NKR-P1B Gene product is an inhibitory receptor on SJL/J NK cells. J. Immunol. 162 (10) 5876.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone:+49-(0)4491-400997, fax:+49-(0)4491-400998, info@immunotools.com
www.immunotools.com

Mouse IgG1 control APC-conjugated

APC- conjugated monoclonal antibody PPV-06 for negative control

Cat-No: **21275516S**

100 µl

Clone: PPV-06

Specificity: This mouse IgG1 monoclonal antibody (clone PPV-06) reacts with undefined epitope on a plant pathogen.

Negativ Species: Human, Porcine, Mouse and Rat

Isotype subclass: Mouse IgG1

Form: The purified antibody is conjugated with cross-linked Allophycocyanin (APC) under optimum conditions. The conjugate is purified by size-exclusion chromatography and adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2)

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

Background: The specificity of staining by monoclonal antibodies to target antigens should be verified by establishing the amount of non-specific antibody binding.
In general, non-reactive immunoglobulin of the same isotype is included as a negative control for each specific monoclonal antibody used in a particular immunoassay.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

Mouse IgG2a control APC-conjugated

APC- conjugated monoclonal antibody PPV-04 for negative control

Cat-No: **21275526S**

100 µl

Clone: PPV-04

Specificity: This mouse IgG2a monoclonal antibody (clone PPV-04) reacts with undefined epitope on a plant pathogen.

Negativ Species: Human, Porcine, Mouse and Rat

Isotype subclass: Mouse IgG2a

Form: The purified antibody is conjugated with cross-linked Allophycocyanin (APC) under optimum conditions. The conjugate is purified by size-exclusion chromatography and adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2)

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

Background: The specificity of staining by monoclonal antibodies to target antigens should be verified by establishing the amount of non-specific antibody binding.
In general, non-reactive immunoglobulin of the same isotype is included as a negative control for each specific monoclonal antibody used in a particular immunoassay.

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

Rat IgG2b APC-conjugated

APC- conjugated monoclonal antibody TBE 15 to IgG2b

Cat-No: **22225036S**

100 µl

Clone: TBE 15

Specificity: none

Isotype subclass: Rat IgG2b, k

Form: The purified antibody is conjugated with cross-linked Allophycocyanin (APC) under optimum conditions. The conjugate is purified by size-exclusion chromatography and adjusted for direct use. No reconstitution is necessary.

Physical state: Liquid

Buffer/Additives/Preservative: PBS containing 1 % BSA and 0.09 % sodium azide (pH 7.2).

Expiration date: The reagent is stable until the expiry date stated on the vial label.

Storage conditions: Store at 4 °C. Avoid prolonged exposure to light.

Application: Flow Cytometry

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com

Annexin V APC-conjugated

APC - conjugated recombinant Annexin V

Cat-No: **31490016S**

100 µl for 20 tests

please note: store at 4°C

(APC)-conjugated recombinant chicken Annexin V (AxV) for the detection of phosphatidylserine exposed in the membrane of apoptotic cells. There is a 85 % homology of recombinant chicken Annexin V to the human Annexin V and a 100 % identity in the phosphatidylserine binding sites. Annexin V-APC binding to PS is Ca^{2+} dependent.

Introduction: Apoptosis and necrosis are the two main forms of cell death. Apoptosis is mostly a physiological process and plays an essential role in the development and homeostasis of all multi-cellular organisms. Apoptosis can be induced by several stimuli like UV- and gamma-irradiation or DNA damaging substances. Apoptotic cells change the structure of their membrane, which leads to the exposure of phosphatidylserine (PS) on the membrane surface. Annexins are ubiquitous homologous proteins that bind phospholipids in the presence of calcium. Since the redistribution of phosphatidylserine from the internal to the external membrane surface represents an early indicator of apoptosis, Annexin V and its conjugates can be used for the detection of apoptosis because they interact strongly and specifically with exposed phosphatidylserine. Detection of apoptotic cells with Annexin V can be achieved earlier than analysis of apoptosis by DNA-based assays.

Buffer/Additives/Preservative: Each vial contains fluorescein conjugated annexin with 0.1 % BSA in PBS. Preservative: 0.09 % w/v sodium azide.

Application: An early event in apoptosis is the flipping of phosphatidylserine of the plasma membrane from the inside surface to the outside surface. Annexin V binds specifically to phosphatidylserine and APC-conjugated Annexin V can be used as a fluorescent probe to label apoptotic cells. Binding of Annexin V to the exposed charged head groups of PS is a Ca^{2+} dependent process. Propidium Iodide is used in conjunction with Annexin V-APC. The cell membrane integrity excludes Propidium Iodide in viable and apoptotic cells, whereas necrotic cells are permeable to Propidium Iodide. Thus dual parameter FACS analysis allows for the discrimination between viable, apoptotic and necrotic cells.

Staining procedure for flow cytometry and fluorescence microscopy:

Wash cells (up to 10^6) in 500 µl binding buffer (PBS with Ca^{2+} = add 0.33 g/l to PBS)
Spin at 250 xg for 5 minutes and discard supernatant,
Resuspend the cell pellet in 70 µl binding buffer,
Add 5 µl of AnnexinV-APC, incubate 15 minutes at room temperature in the dark.

References:

Savill J, Fadok V, Henson P, Haslett C: Phagocyte recognition of cells undergoing apoptosis. Immunol Today 14:131, 1993; Reutelingsperger CP, van Heerde WL: Annexin V, the regulator of phosphatidylserine-catalyzed inflammation and coagulation during apoptosis. Cell Mol Life Sci 53: 527, 1997; Defrancesco L: Dead Again: Adventures in Apoptosis. The Scientist 13:17, 1999

Warning: Sodium azide is harmful if swallowed (R22). Keep out of reach of children (S2). Keep away from food, drink and animal feeding stuff (S13). Wear suitable protective clothing (S36). If swallowed, seek medical advice immediately and show this container or label (S46). Contact with acids liberates very toxic gas (R32). Azide compounds should be flushed with large volumes of water during disposal to avoid deposits in lead or copper plumbing where explosive conditions can develop.

This material is offered for **research use only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

Gladiolenweg 2; 26169 Friesoythe; Germany
phone: +49-(0)4491-400997, fax: +49-(0)4491-400998, info@immunotools.com
www.immunotools.com