

## anti-human CD1a FITC-conjugated

**FITC** - conjugated monoclonal antibody HI149 to CD1a

Cat-No: **21270013S**

100 µl

**Clone:** HI149

**Specificity:** The antibody recognizes CD1a antigen, a 49 KDa polypeptide associated with beta2-microglobulin expressed on cortical thymocytes (strongly), Langerhans cells, dendritic cells and some T cell leukemias and lymphomas. The antibody does not react with peripheral blood T and B lymphocytes, monocytes, granulocytes, platelets and erythrocytes. CD1a antigen is thought to have a role in presentation of lipid antigens.

**Isotype subclass:** Mouse 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, Immunohistochemistry (frozen sections)

**References:** Leucocyte Typing V. Schlossman S. et al. (Eds.), Oxford University Press (1995).

**Background:** CD1a, together with CD1b and c, belongs to group 1 of CD1 glycoproteins. These proteins serve as antigen-presenting molecules for a subset of T cells that responds to specific lipids and glycolipids found in the cell walls of bacterial pathogens or self-glycolipid antigens such as gangliosides, and they have also roles in antiviral immunity. Unlike CD1b, CD1a is excluded from late endosomal compartments and instead traffics independently in the recycling pathway of the early endocytic system, and CD1a antigen presentation is independent upon vesicular acidification.

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## anti-human CD2 FITC-conjugated

**FITC** - conjugated monoclonal antibody LT2 to CD2

Cat-No: **21380023S**

100 µl

**Clone:** LT2

**Specificity:** The antibody LT2 reacts with CD2, a 50 kDa glycoprotein present on the human peripheral blood T lymphocytes and NK cells; also expressed by all thymocytes.

HLDA VI; WS Code T 6T-008

**Isotype subclass:**

Mouse 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.

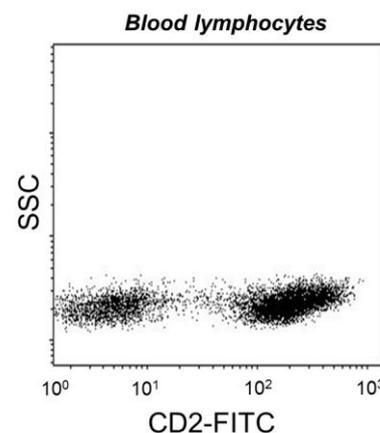
**Application:** Flow Cytometry

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

**Background:** CD2 belongs to T lymphocyte glycoproteins of immunoglobulin superfamily. Its interaction with CD58 stabilizes adhesion between T cells and antigen presenting or target cells. Relatively low affinity of CD2 to CD58 (as measured in solution) is compensated within the two-dimensional cell-cell interface to provide tight adhesion. Moreover, T cell activation induces increased CD2 expression and its lateral mobility, making easier contact between CD2 and CD58. Subsequently T cell activation causes fixation of CD58-CD2 at sites of cell-cell contact, thereby strengthening intercellular adhesion. CD2 deficiency reduces intestinal inflammation and helps to control infection.

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## anti-human CD3 FITC-conjugated

**FITC** - conjugated monoclonal antibody HIT3b to human CD3

Cat-No: **21810033S**

100 µl

**Clone:** HIT3b

**Specificity:** The CD3 (HIT3b) antibody recognizes the 17-19 kD  $\epsilon$ -chain of CD3 within the CD3 antigen/T cell antigen receptor (TCR) complex. The CD3 antigen is expressed in the cell cytoplasm during the early stage of T cell development and is expressed on the cell membrane at the late stage. CD3 antigen is displayed on 60-80% of normal peripheral blood lymphocytes and 60-70% of thymocytes and plays an important role in signal transduction after antigen recognition by TCR. The clone HIT3a has a strong mitogenic effect at ng level on T lymphocyte proliferation in soluble or immobilized conditions and has an immunosuppressive effect at high dose. Conversely, the clone HIT3b has a strong mitogenic effect on T lymphocytes proliferation only under immobilized condition.

**Isotype subclass:** Mouse 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:

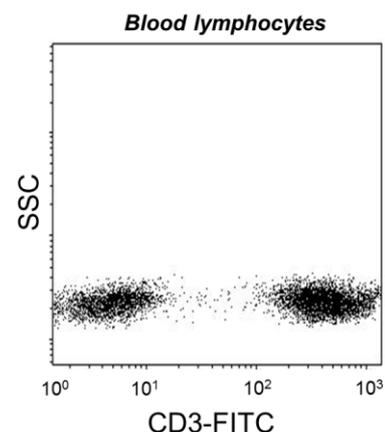
\*Shen DC. et al. 1993. ACTA Academia Medicinae Sinicae. 15(3):157

\*Schlossman S. et al., eds. 1995. Leucocyte Typing V: White Cell Differentiation Antigens. P246, Oxford University Press, New York.

\*Tadamitsu K. et al., eds. 1997. Leucocyte Typing VI: White Cell Differentiation Antigens. P49-52, 113-114 Garland Publishing, Inc., New York.

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## anti-human CD4 FITC-conjugated

**FITC** - conjugated monoclonal antibody HIT4a to human CD4

Cat-No: **21810043S**

100 µl

**Clone:** HIT4a

**Specificity:** The CD4 (HIT4a) Antibody recognizes a 55 kDa type-I single-chain transmembrane glycoprotein. CD4 antigen is a coreceptor for HLA class II molecule and HIV (human immunodeficiency virus), which is present on 35-50% of peripheral blood lymphocytes T helper/inducer (Th/Ti), 70-80% of thymocytes and in low density on the peripheral blood monocytes and tissue macrophages. Th/Ti helps Ig production by B lymphocytes by enhancing maturation and increasing effectiveness of cytotoxic CD8 T cells.

**Isotype subclass:** Mouse IgG2b, 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

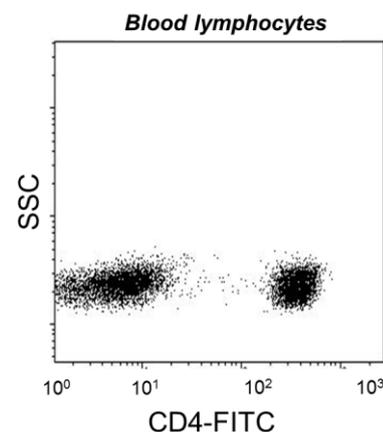
**Storage conditions:** Store at 4 °C. Avoid prolonged exposure to light.

**Application:** Flow Cytometry

### References:

Tadamitsu K. et al., eds. 1997.

Leucocyte Typing VI: White Cell Differentiation Antigens. P49-52, 113-114 Garland Publishing, Inc., New York.



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## anti-human CD8 FITC-conjugated

FITC-conjugated monoclonal antibody UCHT-4 to human CD8

Cat-No: **21620083S**

100 µl

**Clone:** UCHT-4

**Specificity:** The UCHT-4 antibody recognises the CD8 alpha antigen on human cytotoxic/suppressor T-cells. On flow cytometry it stains 14-45% of human peripheral blood mononuclear cells. The antibody has been studied at the III. International Workshop on Human Leukocyte Differentiation Antigens. CD8 is a TCR coreceptor molecule binding MHC class I. The CD8 antigen is expressed on human supressor/cytotoxic T-cells, human NK-cell subset, cortical thymocyte subset and granulocytes.

**Isotype subclass:** Mouse IgG2a/kappa

**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. Do not freeze. Avoid prolonged exposure to light.

**Application:** Flow Cytometry

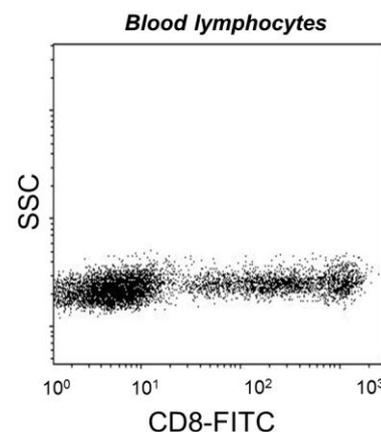
### References:

1. Beverley, P., Proceedings of the Royal Society of Edinburgh 81B: p221-232 (1982)
2. McMichael, A.J. et al. (eds.), Leucocyte typing III., Oxford University Press, Oxford, (1987)
3. Barclay, Brown et al., The Leukocyte Antigen FactsBook, 2nd edition, Harcourt Brace & Company, London, (1997)

**Background:** The **CD8** T cell coreceptor (monomer approx. 32-34 kDa) is expressed as alpha/beta heterodimer on majority of MHC I-restricted conventional T cells and thymocytes and as alpha/alpha homodimer on subsets of memory T cells, intraepithelial lymphocytes, NK cells and dendritic cells. Regulation of CD8 beta level on T cell surface seems to be an important mechanism to control their effector function. Assembly of CD8 alpha-beta but not alpha-alpha dimers is connected with formation or localization to the lipid rafts. Recruiting triggered TCR complexes to these membrane microdomains as well as affinity of TCR to MHC I is modulated by CD8, thereby affecting the functional diversity of the TCR signaling.

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## anti-human CD10 FITC-conjugated

FITC -conjugated monoclonal antibody LT10 to human CD10

Cat-No: **21279103S**

100 µl

**Clone:** LT10

**Specificity:** The antibody LT10 reacts with CD10 antigen (CALLA- Common Acute Lymphatic Leukemia Antigen), a 100 kDa type II integral membrane protein expressed on uncommitted precursors. It is also expressed on activated and proliferating B lymphocytes in the germinal centers and granulocytes.

**Isotype subclass:** Mouse 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. Do not freeze. Avoid prolonged exposure to light.

**Application:** The reagent is designed for Flow Cytometry analysis of human blood cells.

**Background:** CD10 (neutral endopeptidase – NEP, common acute lymphocytic leukemia antigen – CALLA, membrane metallo-endopeptidase – MME, enkephalinase) is a 100-kDa cell surface zinc metalloprotease cleaving peptide bonds on the N-terminus of hydrophobic amino acids and inactivating multiple physiologically active peptides. CD10 is expressed on various normal cell types, including lymphoid precursor cells, germinal center B lymphocytes, and some epithelial cells, and its expression level serves as a marker for diagnostics of many carcinomas. CD10 is also a differentiation antigen for early B-lymphoid progenitors in the B-cell differentiation pathway and has a key role in regulation of growth, differentiation and signal transduction of many cellular systems.

**References:** Leucocyte Typing VII. Mason D. et al. (Eds.), Oxford University Press (2002).

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## anti-human CD11b FITC-conjugated

**FITC** - conjugated monoclonal antibody HI11b to human CD11b

Cat-No: **21819113S**

100  $\mu$ l

**Clone:** HI11b

**Specificity:** The antibody HI11b recognizes CD11b antigen (Mac-1), a 165 kDa type I transmembrane protein mainly expressed on monocytes, granulocytes and NK-cells. The CD11b mediates neutrophil and monocyte interactions with stimulated endothelium. HLDA VI; WS Code BP 310; HLDA VI; WS Code M 18

**Isotype subclass:** Mouse 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

**Background:** CD11b (integrin  $\alpha$ M subunit) is a 165 kDa type I transmembrane glycoprotein that non-covalently associates with integrin  $\beta$ 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:** Leukocyte Typing VI. Kishimoto T. et al. (Eds.), Garland Publishing Inc. (1997).

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## anti-human CD15 FITC-conjugated

**FITC** - conjugated monoclonal antibody HI98 to human CD15

Cat-No: **21810153S**

100 µl

**Clone:** HI98

**Specificity:** The antibody HI98 reacts with CD15, a cell membrane molecule 3-fucosyl-N-acetyllactosamine (3-FAL) strongly expressed on granulocytes, monocytes, macrophages, mast cells; it is also present on Langerhans cells and some myeloid precursors cells. HLDA VI; WS Code AS A053

**Isotype subclass:** Mouse IgM

**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:** CD15 (Lewis X, Le(x); stage specific embryonic antigen-1, SSEA-1) is a trisaccharide determinant (3-fucosyl-N-acetyllactosamine) expressed on several glycolipids, glycoproteins and proteoglycans of various cell types, e.g. granulocytes, mast cells, monocytes, macrophages, cells of gastric mucosa, nervous system or various tumour cells. There are several variants of Lewis x, such as sialyl-Lewis x or sulphated Lewis x. Cells with high surface expression of Le(x) antigen exhibit strong self-aggregation, based on calcium-dependent Le(x)-Le(x) interaction. This process is involved for example in embryo compaction or in autoaggregation of teratocarcinoma cells. Sialyl-Le(x) and its isomer sialyl-Le(a) are ligands of selectins. CD15 expression has been extensively used to confirm diagnosis of Hodgkin's disease.

**References:** Leucocyte Typing IV. Knapp W et al. (Eds.), Oxford University Press (1989).

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# anti-human CD16 FITC-conjugated

FITC-conjugated monoclonal Antibody LNK16 to human CD16

Cat-No: **21279163S**

100 µl

**Clone:** LNK16

**Specificity:** The antibody LNK16 reacts with CD16, a low affinity receptor for aggregated IgG (FcγRIII antigen). CD16 exists in two different isoforms: CD16a (FcγRIIIA; 50-65 kDa; expressed on NK-cells, monocytes and macrophages) and CD16b (FcγRIIIB; 48 kDa; mainly expressed on neutrophils).

**HLDA V; WS Code M MA069**

**HLDA V; WS Code NK50**

**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

**Background:** CD16 (FcγRIII) is a 50-80 kDa glycoprotein serving as a low affinity IgG receptor. Human FcγRIII is expressed in two forms FcγRIII-A and -B. FcγRIII-A is a transmembrane protein of monocytes, macrophages, NK cells and a subset of T cells. It is associated with FcεRI-γ subunit and is responsible for antibody-dependent NK cell cytotoxicity. Mast cell FcγRIII-A is associated, moreover, with FcεRI-β subunit. Besides IgG, FcεRI-A can be triggered also by oligomeric IgE. FcγRIII-B is a GPI-linked monomeric receptor expressed on neutrophils and is involved in their activation and induction of a proadhesive phenotype.

## References:

\*) Gessner JE, Grussenmeyer T, Kolanus W, Schmidt RE: The human low affinity immunoglobulin G Fc receptor III-A and III-B genes. Molecular characterization of the promoter regions. J Biol Chem. 1995 Jan 20;270(3):1350-61

**and others**

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## anti-human CD17 FITC-conjugated

**FITC-** conjugated monoclonal antibody HIP10 to human CD17

Cat-No: **21810173S**

100 µl

**Clone:** HIP10

**Specificity:** The antibody HIP10 recognizes CD17, a membrane lipid moiety lactosylceramide expressed on granulocytes, monocytes and platelets.

**Isotype subclass:** Mouse IgM

**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:

\*) Leucocyte Typing VI. Tadamitsu L et al. (Eds.), White Cell Differentiation Antigens, Garland Publishing New York (1997).

**Background:** **CD17**, lactosylceramide, is an ubiquitous glycosphingolipid with uncharged disaccharide headgroup, highly enriched in lipid raft-derived structures. Besides playing a pivotal role in the biosynthesis of complex glycosphingolipids, lactosylceramide is involved in cell-cell and cell-matrix interactions and in signaling events linked to cell differentiation, development, apoptosis and oncogenesis. Lactosylceramide regulates integrin functions and production of nitric oxide. Its expression defines successive stages in the maturation of myeloid cells.

Lactosylceramide (LaCer) is present on peripheral blood granulocytes including basophils, monocytes, platelets and a subset of B cells (40-80% CD19+). In tissues, CDw17 is found on tonsillar dendritic cells, epithelial cells, intestinal epithelium and endothelial. CDw17 antigen may play a role in phagocytosis.

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## anti-human CD18 FITC-conjugated

**FITC** - conjugated monoclonal antibody HI18a to human CD18

Cat-No: **21810183S**

100 µl

**Clone:** HI18a

**Specificity:** The antibody HI18a recognizes an epitope involving residues 534-546 in cysteine-rich repeat 3 of the CD18 antigen (integrin  $\beta 2$  subunit;  $\beta 2$  integrin). CD18 is a 95 kDa type I transmembrane protein expressed on all leukocytes.

**Isotype subclass:** Mouse 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:

\* Bazil V. et al., Folia Biol. (Praha) 36, 41 (1990).

\* Drbal K. et al., Biochem. Biophys. Res. Commun. 275, 295 (2000).

**Background:** **CD18**, integrin  $\beta 2$  subunit, forms heterodimers with four types of CD11 molecule to constitute leukocyte ( $\beta 2$ ) integrins:  $\alpha L\beta 2$  (CD11a/CD18, LFA-1),  $\alpha M\beta 2$  (CD11b/CD18, Mac-1, CR3),  $\alpha X\beta 2$  (CD11c/CD18) and  $\alpha D\beta 2$  (CD11d/CD18). In most cases, the response mediated by the integrin is a composite of the functions of its individual subunits. These integrins are essential for proper leukocyte migration, mediating intercellular contacts. Absence of CD18 leads to leukocyte adhesion deficiency-1; severe reduction of CD18 expression leads to the development of a psoriasiform skin disease. CD18 is also a target of Mannheimia (Pasteurella) haemolytica leukotoxin and is sufficient to mediate leukotoxin-mediated cytolysis.

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## anti-human CD19 FITC-conjugated

**FITC** - conjugated monoclonal antibody HIB19 to human CD19

Cat-No: **21810193S**

100 µl

**Clone:** HIB19

**Specificity:** The CD19 antibody recognizes a 95-kDa type-I transmembrane glycoprotein which is restricted to B cell antigen. CD19 antigen is expressed on normal and neoplastic B cells and also in some bone marrow cells. CD19 expression by B progenitor cells is presumably at late pro-B or early pre-B stages around the time of Ig heavy chain rearrangement. Expression persists during all stages of B cell maturation and is lost on terminal differentiation to plasma cells. CD19 antigen is also found on the follicular dendritic cells and the early cells of myelomonocytic lineage but not on normal T cells, NK cells, monocytes, granulocytes, erythrocytes and platelets. In normal peripheral blood, 8-20% of lymphocytes express CD19 antigen. CD19 antigen plays a role in regulating B cell proliferation.

**Isotype subclass:** Mouse 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

### References:

\* Elias F et al. : J Immunol.2003 Oct 1;171(7):3697-704.

\* Lin CW et al. : 2005 Nov 15;106(10):3567-74. Epub 2005 Jul 26.

**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.

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## anti-human CD20 FITC-conjugated

FITC-conjugated monoclonal antibody LT20 to human CD20

**Cat-No: 21279203S**

100 µl

**Clone: LT20**

**Specificity:** The antibody LT20 reacts with CD20 (Bp35), a 33-37 kDa non-glycosylated membrane receptor with four transmembrane domains, expressed on B lymphocytes (it is lost on plasma cells), follicular dendritic cells, and at low levels on peripheral blood T lymphocytes.

**Isotype subclass:** Mouse 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:** CD20 is a cell surface 33-37 (depending on the degree of phosphorylation) kDa non-glycosylated surface phosphoprotein expressed on mature and most malignant B cells, but not stem cells or plasma cells (low number of the Cd20 has been also detected on a subpopulation of T lymphocytes and it can be expressed on follicular dendritic cells). Its expression on B cells is synchronous with the expression of surface IgM. CD20 regulates transmembrane calcium conductance (probably functioning as a component of store operated calcium channel), cell cycle progression and B-cell proliferation. It is associated with lipid rafts, but the intensity of this association depends on extracellular triggering, employing CD20 conformational change and/or BCR (B cell antigen receptor) aggregation. After the receptor ligation, BCR and CD20 colocalize and then rapidly dissociate before BCR endocytosis, whereas CD20 remains at the cell surface. CD20 serves as a useful target for antibody-mediated therapeutic depletion of B cells, as it is expressed at high levels on most B-cell malignancies, but does not become internalized or shed from the plasma membrane following mAb treatment.

### References

\*Leucocyte Typing VII. Mason D. et al. (Eds.), Oxford University Press (2002).

\*Olyak MJ, Deans JP.: Cancer Res. 2003 Sep 1;63(17):5480-9.

\*Teeling JL, Mackus WJ, Wiegmann LJ, van den Brackel JH, Beers SA, French RR, van Meerten T, Ebeling S, Vink T, Slootstra JW, Parren PW, Glennie MJ, van de Winkel JG.: J Immunol. 2006 Jul 1;177(1):362-71.

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## anti-human CD24 FITC-conjugated

FITC-conjugated monoclonal antibody SN3 to human CD24

**Cat-No: 21270243S**

100 µl

**Clone:** SN3

**Specificity:** The antibody SN3 reacts with CD24, a 35-45 kDa heavily glycosylated cell surface antigen. CD24 is expressed by granulocytes, B lymphocytes and by some activated T cells and T cell malignancies. It is not expressed on human thymocytes.

**HLDA IV; WS Code B 136; HLDA V; WS Code B CD24.7**

**Isotype subclass:** Mouse 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:** Application: Flow Cytometry

**Background:** **CD24**, also known as heat-stable antigen (HSA) or nectadorin, is a small mucin-like GPI-anchored extracellular membrane glycoprotein expressed on several cell types, including B cells. When B cells are activated and induced to further maturation, however, CD24 begins to disappear. CD24 seems to act as a gate-keeper for lipid rafts, thereby regulating the activity of integrins and other proteins such as the chemokine receptor CXCR4; it is also a ligand for P-selectin. CD24 triggering induces apoptosis of B cell precursors but not in mature resting B cells, where it instead inhibits their ability to proliferate in response to activation. CD24 expression is associated with invasiveness and poorer prognosis of carcinomas and is a marker of exosomes secreted into urine and amniotic fluid.

### References:

- \*Suzuki T and others: J Immunol. 2001 May 1;166(9):5567-77.
- \*Schabath H and others: J Cell Sci. 2006 Jan 15;119(Pt 2):314-25.
- \*Keller S and others: Kidney Int. 2007 Nov;72(9):1095-102.
- \*Chou YY and others: Ann Surg Oncol. 2007 Oct;14(10):2748-58.
- \*Runz S and others: Biochem Biophys Res Commun. 2008 Jan 4;365(1):35-41.

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## anti-human CD25 FITC-conjugated

**FITC** - conjugated monoclonal antibody HI25a to human CD25

Cat-No: **21810253S**

100 µl

**Clone:** HI25a

**Specificity:** The antibody HI25a reacts with CD25 (Interleukin-2 receptor  $\alpha$  chain), a 55 kDa type I trans-membrane glycoprotein expressed on activated B and T lymphocytes, activated monocytes/macrophages and on CD4+ T lymphocytes (T regulatory cells); it is lost on resting B and T lymphocytes. Antigen density of CD25 is upregulated by the stimulation of PHA, ConA and CD3 antibody

**Isotype subclass:** Mouse 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:** Leukocyte Typing VI. Kishimoto T. et al. (Eds.), Garland Publishing Inc. (1997).

**Background:** CD25 (IL2R $\alpha$ , 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. Humanized anti CD25 antibodies represent a useful tool to reduce the incidence of allograft rejection as well as the severity of graft versus host reaction, and radioimmunoconjugates of anti-CD25 antibodies can be used against CD25 expressing lymphomas.

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# anti-human CD29 FITC-conjugated

**FITC-conjugated monoclonal antibody HI29a to human CD29**

Cat-No: **21810293S**

100 µl

**Clone:** HI29a

**Specificity:** HI29a recognizes a transmembrane glycoprotein-130 KD integrin  $\beta$ 1 subunit which is as the common  $\beta$ 1 chain of the very late antigen (VLA) forming a non-covalent heterodimeric complex with one of nice distinct integrins  $\alpha$  subunits.

**Isotype subclass:** Mouse 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:** Leukocyte Typing VI. Kishimoto T. et al. (Eds.), Garland Publishing Inc. (1997).

**Background:** CD29 is called VLA- $\beta$  chain or platelet GPIIa, and has a broad tissue distribution including lymphocytes, monocytes, platelets, fibroblasts, endothelial cells and weakly on granulocytes, but not on erythrocytes. CD29 is an important adhesion molecule involved cell-cell and cell-extracellular matrix interactions and plays a critical role in the functional activity of lymphocytes by influencing cellular migration patterns as well as by transducing intracellular signals that influence lymphocyte function.

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# anti-human CD36 FITC-conjugated

## FITC-conjugated monoclonal Antibody TR9 to CD36 (Human)

Cat-No: **21270363S**

100 µl

**Clone:** TR9

**Specificity:** The antibody TR9 reacts with CD36 (GPIIb), a 85 kDa integral membrane glycoprotein expressed on platelets, macrophages, endothelial cells, early erythroid cells and megakaryocytes. The antibody TR9 cross-blocks binding of FITC-labeled standard antibody OKM5.

Anti-CD36 antibodies inhibit adhesive functions (e.g. adherence of infected erythrocytes to target cells).

**Isotype subclass:** Mouse 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:** Application: Flow Cytometry

**Background:** **CD36** (fatty acid translocase, FAT) is an 88 kDa ditopic glycosylated protein that belongs to the class B family of scavenger receptors. CD36 is expressed by most resting marginal zone B cells but not by follicular and B1 B cells, and it is rapidly induced on Follicular B cells in vitro upon TLR and CD40 stimulation. CD36 does not affect the development of B cells, but modulates both primary and secondary antibody response. Similarly to glucose transporter GLUT4, CD36 is translocated from intracellular pools to the plasma membrane following cell stimulation by insulin. In mouse, CD36 is responsible for gustatory perception of long-chain fatty acids.

### References:

\* Gaillard D, Laugerette F, Darcel N, El-Yassimi A, Passilly-Degrace P, Hichami A, Akhtar Khan N, Montmayeur JP, Besnard P: *FASEB J.* 2007 Dec 27

\* van Oort MM, van Doorn JM, Bonen A, Glatz JF, van der Horst DJ, Rodenburg KW, Luiken JJ: *Biochim Biophys Acta.* 2007 Dec 15

\* Won WJ, Bachmann MF, Kearney JF: *J Immunol.* 2008 Jan 1;180(1):230-7.

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## anti-human CD41a FITC-conjugated

FITC-conjugated monoclonal antibody HIP8 to CD41a (Human)

Cat-No: **21810413S**

100 µl

**Clone:** HIP8

**Specificity:** The antibody HIP8 reacts with alpha (α) subunit of CD41 (heavy chain; 120 kDa). CD41 is mainly expressed on platelets and megakaryocytes.

The antibody HIP8 blocks platelet aggregation and completely inhibits ADP-, epinephrine-, and collagen-induced platelet activation, and partially inhibits ristocetin- and thrombin-induced platelet activation. HIP8 is useful in the morphological and physiological studies of platelets and megakaryocytes.

**Isotype subclass:** Mouse 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:** Leukocyte Typing VI., Kishimoto T. et al. (Eds.), Garland Publishing Inc. (1997)

**Background:** CD41 (platelet glycoprotein IIb) is composed of two subunits (120 kDa α, alpha and 23 kDa β, beta) that interact with CD61 in the presence of calcium to form a functional adhesive protein receptor. Upon blood vessel damage, this receptor binds to a variety of proteins including von Willebrand factor, fibrinogen, fibronectin and vitronectin. CD41 is mainly expressed on megakaryocyte-platelet lineage, but generally belongs to the antigens that are expressed during early stages of hematopoietic differentiation.

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## anti-human CD45 FITC-conjugated

**FITC** - conjugated monoclonal antibody HI30 to human CD45

Cat-No: **21810453S**

100 µl

**Clone:** HI30

**Specificity:** The antibody HI30 reacts with all alternative forms of human CD45 antigen (Leukocyte Common Antigen), a 180-220 kDa single chain type I transmembrane protein expressed at high level on all cells of hematopoietic origin, except erythrocytes and platelets and non-hematopoietic tissues and cells. CD45 is critically required for T and B cell antigen receptor-mediated activation.

**Isotype subclass:** Mouse 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:

Horejsi V. et al., Folia Biol. (Praha) 34, 23 (1988).

Bazil V. et al., Immunogenetics 29, 202 (1989)

Leucocyte Typing III. McMichael A. J. et al (Eds.), Oxford University Press (1987).

Leucocyte Typing IV. Knapp W et al. (Eds.), Oxford University Press (1989).

**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.

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## anti-human CD45RO FITC-conjugated

FITC-conjugated monoclonal antibody UCHL1 to human CD45RO

Cat-No: **21336453S**

100 µl

**Clone:** UCHL1

**Specificity:** The antibody UCHL1 recognizes CD45R0, a 180 kDa low molecular weight isoform of the leukocyte common antigen (LCA). The antigen is expressed on a subset of memory/activated T cells and on cortical thymocytes.

HLDA III; WS Code NL 826, HLDA III; WS Code T 128, HLDA IV; WS Code NL 31, HLDA V; WS Code BP BP460, HLDA V; WS Code T T-081, HLDA V; WS Code T T-CD45.43

**Isotype subclass:** Mouse 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:** Direct immunofluorescence staining with analysis by flowcytometry or fluorescence microscopy.

**Background:** CD45R0 is the shortest isoform of a receptor-type protein tyrosine phosphatase, CD45 glycoprotein. CD45 is crucial in lymphocyte development and antigen signaling, serving as an important regulator of Src-family kinases, promotes cell survival by modulating integrin-mediated signal transduction pathway and is also involved in DNA fragmentation during apoptosis. CD45 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. CD45R0 is expressed e.g. on macrophages, CD8+ T cells, activated T cells and myeloma cells.

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## anti-human / anti-bovine CD46 FITC-conjugated

**FITC** - conjugated monoclonal antibody MEM-258

Cat-No: **21270463S**

100 µl

**Clone:** MEM-258

**Specificity:** The antibody MEM-258 recognizes an epitope on SCR4 (the membrane-proximal SCR) domain of CD46 (Membrane cofactor protein). CD46 is 56-66 kDa dimeric transmembrane protein expressed on T and B lymphocytes, platelets, monocytes, granulocytes, endothelial cells, epithelial cells and fibroblast; it is negative on erythrocytes.

**Isotype subclass:** Mouse 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:** The reagent is designed for Flow Cytometry analysis

**References:** \*

Okada N and others: Proc Natl Acad Sci U S A. 1995 Mar 28;92(7):2489-93

\*Marie JC and others: Nat Immunol. 2002 Jul;3(7):659-66

\*Gaggar A and others: Nat Med. 2003 Nov;9(11):1408-12.

\*Liszewski MK and others: Springer Semin Immunopathol. 2005 Nov;27(3):345-58.

\*Oliaro J and others: Proc Natl Acad Sci U S A. 2006 Dec 5;103(49):18685-90.

**Background:** CD46 (MCP, membrane cofactor protein) is a multifunctional cell surface transmembrane protein that binds and inactivates C3b and C4b complement fragments, regulates T cell-induced inflammatory responses by either inhibiting (CD46-1 isoform) or increasing (CD46-2 isoform) the contact hypersensitivity reaction. CD46 also serves as a receptor for several human pathogens (both bacteria and viruses), and its ligation alters T lymphocyte polarization toward antigen-presenting cells or target cells, inhibiting lymphocyte function. CD46 is a protector of placental tissue and is also expressed on the inner acrosomal membrane of spermatozoa.

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## anti-human CD52 FITC-conjugated

FITC-conjugated monoclonal antibody HI186 to human CD52

Cat-No: **21270523S**

100 µl

**Clone:** HI186

**Specificity:** The antibody HI186 reacts with CD52 (CAMPATH-1), a 21-28 kDa glycoprotein containing a large N-linked carbohydrate moiety; mature CD52 molecule is actually much smaller (approx. 8-9 kDa). CD52 is expressed at high levels on lymphocytes, monocytes/macrophages and in male reproductive tract.

**HLDA VI; WS Code BP 523 / HLDA VI; WS Code T 6T-057**

**Isotype subclass:** Mouse 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

### References:

\*Treumann A and others: 1995 Mar 17;270(11):6088-99.

\*Rowan WC and others: 1995 Jan;7(1):69-77.

\*Schröter S and others: 1999 Oct 15;274(42):29862-73.

\*Domagała A, Kurpisz M: 2001 Mar-Apr;7(2):325-31.

\*Koyama K and others: 2007;63:103-10.

**Background:** CD52 (CAMPATH-1, HE5) is a highly glycosylated GPI-anchored 21-28 kDa glycopeptide which is present at high levels on lymphocytes, macrophages, epithelial cells of male reproductive tract and mature sperm. Its 12-amino acid backbone carries a complex N-linked carbohydrate moiety, which differs between sperm and leukocyte CD52, as well as the GPI anchor does. CD52 can be acquired by sperm cells from seminal plasma, where it is released by epithelial cells. Although CD52 is not an essential T-cell costimulator, its triggering results in activation of normal human T cells. CD52 is a very good target for antibody/complement-mediated cell lysis.

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## anti-human CD53 FITC-conjugated

**FITC** - conjugated monoclonal antibody HI29 to human CD53

Cat-No: **21810533S**

100 µl

**Clone:** HI29

**Specificity:** The antibody HI29 recognizes a 32-40 kDa type III, tetraspan membrane glycoprotein called TM4. CD53 antigen appears to be the marker with the strictest specificity for hematopoietic cells expressing all leukocytes including plasma cells, but not on platelets, erythrocytes and non-hematopoietic cells. The antibody HI29 mediates signal transduction.

**Isotype subclass:** Mouse 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:

Leucocyte Typing IV. Knapp W et al. (Eds.), Oxford University Press (1989).  
Angelisova P. et al., Immunogenetics 32, 281 (1990).  
Olweus J. et al., J. Immunol. 151, 707 (1993).  
Rasmussen A.-M. et al., J. Immunol. 153, 4997 (1994).

**Background:** CD53 is a tetraspanin family transmembrane glycoprotein expressed in the lymphoid-myeloid lineage. This molecule has been reported to form complexes with other leukocyte surface proteins such as CD2, CD19, CD21, MHC II, VLA-4 or tetraspanins CD37, CD81 and CD82, thus probably modulating various signaling processes. CD53 is involved in radioresistance of tumour cells and its triggering has anti-apoptotic effect. In thymus, CD53 is up-regulated in response to positive selection signals during T cell development, and is strongly expressed upon macrophage exposure to bacterial lipopolysaccharide, whereas stimulation of neutrophils results in down-regulation of CD53 expression.

**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.

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## anti-human/-rat/-bovine CD54 FITC-conjugated

**FITC** - conjugated monoclonal antibody 1H4 to human CD54

Cat-No: **21279543S**

100 µl

**Clone:**1H4

**Specificity:** The antibody 1H4 reacts with CD54 (ICAM-1), a 85-110 kDa type I transmembrane glycoprotein (receptor for rhinovirus) expressed on activated endothelial cells, T lymphocytes, B lymphocytes, monocytes, macrophages, granulocytes and dendritic cells; the expression of CD54 is upregulated by activation.

**Isotype:** Mouse IgG2b

**Species Reactivity:** Human, Rat, Bovine

**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)

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

**Application:** The reagent is designed for Flow Cytometry analysis of blood cells.

### References:

\*Boyd AW and others: 1988 May;85(9):3095-9.

\*Boyd AW and othes: 1989 May 15;73(7):1896-903.

\*Springer TA.: 1990 Aug 2;346(6283):425-34.

\*Ockenhouse CF and othes: 1992 Jan 10;68(1):63-9. Erratum in: Cell 1992 Mar 6;68(5):following 994.

**Background:** CD54 (ICAM-1) is a 90 kD member of the C2 subset of immunoglobulin superfamily. It is a transmembrane 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.

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## anti-human CD56 FITC-conjugated

**FITC** - conjugated monoclonal antibody MEM-188 to human CD56

Cat-No: **21270563S**

100 µl

**Clone:** MEM-188

**Specificity:** The antibody MEM-188 reacts with a 180 kDa isoform of CD56 (NCAM) expressed in leukocytes. It has been suggested that the antibody MEM-188 could react with rhesus monkey lymphocytes. Reactivity with other NCAM isoforms has not been tested.

**HLDA VI; WS code A055, HLDA VI; WS Code NK26, HLDA VII; WS code 70077**

**Isotype subclass:** Mouse 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:** The reagent is designed for Flow Cytometry analysis

### References:

\*Lanier LL, and other: 1991 Jun 15;146(12):4421-6.

\*Jakovcevski I, Mo Z, Zecevic N: 2007 Oct 26;149(2):328-37.

\*Ohishi Y and other: 2007 Oct;107(1):30-8.

\*McCluggage WG and other: 2007 Jul;26(3):322-7.

**Background:** CD56 (NCAM, neural cell adhesion molecule) is a transmembrane glycoprotein of immunoglobulin family serving as adhesive molecule which is ubiquitously expressed in nervous system, usually as 120 kDa, 140 kDa or 180 kDa isoform, and it is also found on T cells and NK cells. Polysialic modification results in reduction of CD56-mediated cell adhesion and is involved in cell migration, axonal growth, pathfinding and synaptic plasticity. CD56 is a widely used neuroendocrine marker with a high sensitivity for neuroendocrine tumours and ovarian granulosa cell tumours.

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## anti-human CD58 FITC-conjugated

**FITC-conjugated monoclonal antibody HI58a to CD58 (Human)**

Cat-No: **21810583S**

100 µl

**Clone:** HI58a

**Specificity:** The antibody HI58a reacts with CD58 (LFA-3), a 55-70 kDa glycoprotein distributed over many tissues, leukocytes, erythrocytes, endothelial cells, epithelial cells and fibroblasts.  
HLDA VI; WS Code AS A047

**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:** \*Bayas MV and other: Biophys J. 2003 Apr;84(4):2223-33.  
\*Veltroni M and other: 2003 Nov;88(11):1245-52.

**Background:** CD58 (LFA-3) is an immunoglobulin family adhesion molecule expressed by both hematopoietic and non-hematopoietic cells (often on antigen presenting cells) and serving as ligand of CD2. This interaction is important for T cell-mediated immunity. CD58 is expressed in transmembrane form and in GPI-anchored form; the later is constitutively associated with protein kinases whereas the transmembrane form activates kinase activity upon triggering. CD58 is a powerful tool for detection of minimal residual disease in acute lymphocytic leukemia, and for evaluation of liver damage related with hepatitis B.

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## anti-human CD61 FITC-conjugated

FITC-conjugated monoclonal antibody CLB-thromb/1, C17 to human CD61

Cat-No: **21330613S**

100 µl

**Clone:** CLB-thromb/1, C17

**Specificity:** The monoclonal antibody C17 recognizes CD61, 110 kDa transmembrane glycoprotein (under reducing conditions) of integrin family and reacts with platelets, monocytes, some B cells, megakaryocytes, megakaryoblasts, endothelial cells, fibroblasts, smooth muscle cells and osteoblasts (integrin beta-3 chain) in complexed form and does not react with the platelets of patients with Glanzmann Thrombasthenia.

**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:

\*Borne, A.E.G.Kr. von dem, Leucocyte Typing III, 748 (1987).

\*Modderman, P.W. et al., Trombosis and Haemostasis, 60, 68 (1988).

\*Knapp, W. et al., Immunology Today 10, 253 (1989).

**Background:** CD61 (beta3 integrin) is a transmembrane glycoprotein, which associates with CD41 or CD51 molecules to form heterodimeric adhesion receptors. CD41/CD61 complex is one of the earliest markers of the megakaryocytic lineage. It binds to fibronectin, fibrinogen and von Willebrand factor, and is involved in platelet aggregation. CD51/CD61 complex has similar binding properties and is involved in modulating migration and survival of angiogenic endothelial cells. CD61 is a useful marker of megakaryoblasts and megakaryoblastic leukaemias and inhibits binding of ligand (fibrinogen, fibronectin, etc.). This antibody has been clustered to CD61 in the Fourth, Fifth and Sixth International Workshop on Human White Cell Differentiation Antigens.

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## anti-human CD62L FITC-conjugated

**FITC** - conjugated monoclonal antibody LT-TD180 to human CD62L

Cat-No: **21279623S**

100 µl

**Clone:** LT-TD180

**Specificity:** The antibody LT-TD180 reacts with CD62L (L-selectin), a 74-95 kDa single chain type I glycoprotein expressed on most peripheral blood B lymphocytes, T lymphocytes, monocytes and granulocytes; it is also present on a subset of NK cells and certain hematopoietic malignant cells.

**Isotype subclass:** Mouse 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:

\*Von Andrian UH and others: 1992 Oct;263(4 Pt 2):H1034-44.

\*von Andrian UH and others: 1993 Jul 1;82(1):182-91.

\*Simon SI and other: 1995 Aug 1;155(3):1502-14.

\*Ding Z and other: 2003 Jun 1;101(11):4245-52.

\*Ramachandran V and other: 2004 Sep 14;101(37):13519-24.

**Background:** CD62L (L-selectin) is an adhesion glycoprotein that is constitutively expressed on the cell surface of leukocytes 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).

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## anti-human CD63 FITC-conjugated

**FITC** - conjugated monoclonal antibody MEM-259 to human CD63

Cat-No: **21270633S**

100 µl

**Clone:** MEM-259

**Specificity:** The antibody MEM-259 reacts with CD63 (LAMP-3), a 40-60 kDa tetraspan glycoprotein expressed by granulocytes, platelets, T cells, monocytes/macrophages and endothelial cells. Cell surface exposition of CD63 is usually activation-dependent.

**Isotype subclass:** Mouse 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:

- \*Grützkau A and other: 2004 Sep;61(1):62-8.
- \*Mantegazza AR and other: 2004 Aug 15;104(4):1183-90.
- \*Pfistershammer K and other: 2004 Nov 15;173(10):6000-8.
- \*Israels SJ, McMillan-Ward EM: 2005 Feb;93(2):311-8.
- \*Kwon MS and other: 2007 Jul;57(1):46-53.
- \*Lin D and other: 2008 Jan 22

**Background:** CD63 (LAMP-3, lysosome-associated membrane protein-3), a glycoprotein of tetraspanin family, is present in late endosomes, lysosomes and secretory vesicles of various cell types. It is also present in the plasma membrane, usually following cell activation. Hence, it has become a widely used basophil activation marker. In mast cells, however, CD63 exposition does not need their activation. CD63 interacts with integrins and affects phagocytosis and cell migration, it is also involved in H/K-ATPase trafficking regulation of ROMK1 channels. CD63 also serves as a T-cell costimulation molecule. Expression of CD63 can be used for predicting the prognosis in earlier stages of carcinomas.

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## anti-human CD72 FITC-conjugated

FITC-conjugated monoclonal antibody 3F3 to CD72 (Human)

**Cat-No: 21270723S**

100 µl

**Clone: 3F3**

**Specificity:** The antibody 3F3 reacts with CD72, a 39-43 kDa type II membrane glycoprotein (C-type lectin family). CD72 is a pan-B cell marker expressed throughout the B lymphocytes differentiation with the exception of plasma cells; it is also present on follicular dendritic cells.

**HLDA V; WS Code B CD72.5**

**HLDA VI; WS Code B CD72.1**

**HLDA VI; WS Code 6 BP 84**

**Isotype subclass:** Mouse 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:** CD72 is a transmembrane glycoprotein expressed as a homodimer especially in B cells, but also in other antigen presenting cells such as dendritic cells and macrophages. Through one of its immunoreceptor tyrosine-based inhibitory motives (ITIMs), CD72 interacts with tyrosine phosphatase SHP-1, thereby suppressing B cell responsiveness. Binding of CD72 with its ligand CD100 (Sema4D) prevents BCR association and phosphorylation of CD72 and results in dissociation of SHP-1 from CD72, thus enables B cell activation.

### References:

\*Kumanogoh A and others: 2000 Nov;13(5):621-31.

\*Kumanogoh A, Kikutani H: 2001 Dec;22(12):670-6.

\*Kumanogoh A and others: 2005 Oct;17(10):1277-82.

\*Mizrahi S and others: 2007 Sep 5;2(9):e818.

**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.

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## anti-human CD86 FITC-conjugated

FITC-conjugated monoclonal antibody BU63 to human CD86

Cat-No: **21480863S**

100 µl

**Clone:** BU63

**Specificity:** The antibody BU63 reacts with CD86 (B7-2), a 70 kDa type I transmembrane glycoprotein of immunoglobulin supergene family, expressed on professional antigen-presenting cells, such as dendritic cells, macrophages or activated B lymphocytes.

HLDA V; WS Code BP BP072, HLDA V; WS Code A A109, HLDA VI; WS Code BP 95, HLDA VI; WS Code B CD86.9

**Isotype subclass:** Mouse 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:

\*Mauri D and others: J Immunol. 1995 Jul 1;155(1):118-27

\*Leukocyte Typing V., Schlossman S. et al. (Eds.), Oxford University Press (1995).

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

\*Giguère JF and others: J Virol. 2004 Jun;78(12):6222-32.

**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.

**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.

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## anti-human CD235ab FITC-conjugated

FITC-conjugated monoclonal antibody HIR2 to human CD235a

Cat-No: **21272353S**

100µl

**Clone:** HIR2

**Specificity:** The antibody HIR2 recognizes N-terminal portion of glycoprotein A and weakly of glycoprotein B. Their antigens are expressed on early erythroblasts, late erythroblasts, erythroblasts, mature erythrocytes and the cells of erythroid cell lines K562 and HEL, but not on all other cells. Mature, non-nucleated red blood cells are characteristically glycoprotein A positive, but CD45 and CD71 negative.

**HLDA VII; WS Code 70299**

**Isotype subclass:** Mouse 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:** The reagent is designed for Flow Cytometry analysis.

### References:

\*Nakahata T and Okumura N.: 1994;13: 401.

\*Rogers CE and others: 1996; 24: 597.

\*Bain BJ.: Gower Medical Publishing; 1990.

\*Keren DF and others: Chicago, IL: ASCP Press; 1994.

\*Yajima A and others: 2008;52(2):69-77.

**Background:** CD235ab is a transmembrane sialoglycoprotein expressed on erythrocytes and their precursors. Similarly to glycoprotein B (GPB) these molecules provide the cells with a large mucin-like surface, which minimalizes aggregation between erythrocytes in the circulation. GPA is the carrier of blood group M and N specificities, while GPB accounts for S, s and U specificities.

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## anti-human HLA-ABC FITC-conjugated

FITC -conjugated monoclonal antibody W6/32 to human HLA-ABC

Cat-No: **21159033S**

100 µl

**Clone:** W6/32

**Specificity:** The anti-human HLA-ABC monoclonal antibody recognizes an epitope common among 43 kDa chains of the HLA-ABC antigens. These antigens appear on virtually every human nucleated cell. This antibody is suitable as a positive control for HLA tissue typing and crossmatching.

**Isotype subclass:** Mouse 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:

- \*Heike, M. et al (1996) Journal of Immunol. 156:2205-2213
- \* Pettersen, R.D. et al (1996) Journal of Immunol. 156:1415-1424
- \* King, A. et al (1996) Journal of Immunol.
- \* Polyak, S. et al (1997) Journal of Immunol 159:2177-2188

**Background:** The W6/32 monoclonal antibody reacts with the human major histocompatibility complex (MHC) class I, HLA-A, B, C. MHC class I antigens associated with beta 2-microglobulin are expressed by all human nucleated cells and are central in cell-mediated immune response and tumor surveillance. W6/32 mAb recognizes a non-polymorphic epitope shared among products of the HLA-A, B, and C loci and immunoprecipitates both 43 kDa and 11-12 kDa chains.

Crossreactivity is also seen in baboon, rhesus and cynomolgus monkey.

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# anti-human pan HLA-Class II FITC-conjugated

**FITC-** Monoclonal Antibody HKB1 to pan HLA-Class II (Human)

**Cat-No:** 21629233S

100 µl

**Clone:** HKB1

**Specificity:** The antibody recognises all HLA-Class II antigens, the 3 major (HLA-DP, -DQ and -DR) and 2 minor Major Histocompatibility Complex MHC class II proteins (HLA-DM and -DO). The genes of the class II combine to form heterodimeric ( $\alpha\beta$ ) protein receptors that are typically expressed on the surface of antigen presenting cells (APCs): dendritic cells B-cells and macrophages. HLA class II is presented on activated T-cells. HLA class II molecules present exogenously derived antigen to the T cell receptor (TCR) on CD4 + T lymphocytes.

**Isotype subclass:** Mouse monoclonal IgM

**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:

Barclay, Brown et al., The Leucocyte Antigen FactsBook, 2<sup>nd</sup> edition, Harcourt Brace & Company, London(1997)

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## mouse IgG1 Isotype control FITC-conjugated

**FITC-conjugated monoclonal antibody 1F8 to IgG1**

Cat-No: **21815013S**

100 µl

**Clone:** 1F8

**Specificity:** This reagent can be used as a mouse IgG1 isotype control.

**Isotype subclass:** Mouse IgG1

**Form:** The purified antibody is conjugated with Fluoresceinisothiocyanate (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.

**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.

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## mouse IgG2a Isotype control FITC-conjugated

**FITC** - conjugated monoclonal antibody X5563 to IgG2a

Cat-No: **21815023S**

100 µl

**Clone:** X5563

**Specificity:** This reagent can be used as a mouse IgG2a isotype control.

**Isotype subclass:** Mouse IgG2a

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

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

**Physical state:** Liquid

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

**Storage conditions:** Store at 4 °C. Do not freeze. 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.

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## mouse IgG2b Isotype control FITC-conjugated

FITC-monoclonal antibody TG1.7 to IgG2b

Cat-No: **21815033S**

100 µl

**Clone:** TG1.7

**Specificity:** This reagent can be used as a mouse IgG2b isotype control.

**Isotype subclass:** Mouse IgG2b

**Form:** The purified antibody is conjugated with Fluoresceinisothiocyanate (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

**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.

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# 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<sup>2+</sup> 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<sup>2+</sup> 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<sup>6</sup>) in 500 µl binding buffer (PBS with Ca<sup>2+</sup> = 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

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## anti-human CD3 PE-conjugated

PE- conjugated monoclonal antibody to human CD3

Cat-No: **21850034S**

100 µl

**Clone:** OKT-3

**Specificity:** The OKT3 monoclonal antibody reacts with an epitope on the epsilon-subunit within the human CD3 complex. The OKT3 antibody has been reported to have potent immunosuppressive properties in vivo and has been proven effective in the treatment of renal, heart and liver allograft rejection. The CD3 subunits, gamma, delta, and epsilon chains are required for proper assembly, trafficking and surface expression of the TCR complex. CD3 is expressed by thymocytes in a developmentally regulated manner and by all mature T cells. Crosslinking of TCR initiates an intracellular biochemical pathway resulting in cellular activation and proliferation.

**Isotype subclass:** Mouse IgG2a

**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 R-Phycoerythrin (R-PE) 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.) Tanaka Y, et al. Productive and lytic infection of human CD4+ type 1 helper T cells with macrophage-tropic human immunodeficiency virus type 1. J Virol. 1997 Jan;71(1):465-70
- 2.) Hutchcroft JE, Tsai B, Bierer BE. Differential phosphorylation of the T lymphocyte costimulatory receptor CD28. J Biol Chem. 1996 Jun 7;271(23):13362-70.

**Background:** CD3 complex is crucial in transducing antigen-recognition signals into the cytoplasm of T cells and in regulating the cell surface expression of the TCR complex. T cell activation through the antigen receptor (TCR) involves the cytoplasmic tails of the CD3 subunits CD3 gamma, CD3 delta, CD3 epsilon and CD3 zeta. These CD3 subunits are structurally related members of the immunoglobulins super family encoded by closely linked genes on human chromosome 11. The CD3 components have long cytoplasmic tails that associate with cytoplasmic signal transduction molecules. This association is mediated at least in part by a double tyrosine-based motif present in a single copy in the CD3 subunits. CD3 may play a role in TCR-induced growth arrest, cell survival and proliferation. The CD3 antigen is present on 68-82% of normal peripheral blood lymphocytes, 65-85% of thymocytes and Purkinje cells in the cerebellum. It is never expressed on B or NK cells. Decreased percentages of T lymphocytes may be observed in some autoimmune diseases.

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## anti-human CD4 PE-conjugated

PE- conjugated monoclonal antibody to human CD4

Cat-No: **21850044S**

100 µl

**Clone:** OKT-4

**Specificity:** The OKT4 monoclonal antibody reacts with human CD4, a 59 kDa cell surface glycoprotein expressed by the majority of thymocytes, a subpopulation of mature T cells (T-helper cells) and in low levels on monocytes. CD4 is a receptor for the human immunodeficiency virus (HIV).

The OKT4 antibody recognizes a different epitope than the RPA-T4 monoclonal antibody, and these antibodies do not cross-block binding to each other's respective epitopes.

**Isotype subclass:** Mouse 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 R-Phycoerythrin (R-PE) 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. Bour S, Boulerice F, Wainberg MA. J Virol. 1991 Dec;65 (12):6387-96. (OKT4, IP, PubMed)
2. Reinherz EL, Kung PC, Goldstein G, Schlossman SF. 1979. Natl Acad Sci. 76(8): 4061-5.

**Background:** CD4 is a single chain transmembrane glycoprotein and belongs to immunoglobulin supergene family. In extracellular region there are 4 immunoglobulin-like domains (1 Ig-like V-type and 3 Ig-like C2-type). Transmembrane region forms 25 aa, cytoplasmic tail consists of 38 aa. Domains 1,2 and 4 are stabilized by disulfide bonds. The intracellular domain of CD4 is associated with p56Lck, a Src-like protein tyrosine kinase. It was described that CD4 segregates into specific detergent-resistant T-cell membrane microdomains. Extracellular ligands: MHC class II molecules (binds to CDR2-like region in CD4 domain 1); HIV envelope protein gp120 (binds to CDR2-like region in CD4 domain 1); IL-16 (binds to CD4 domain 3), Human seminal plasma glycoprotein gp17 (binds to CD4 domain 1), L-selectin - Intracellular ligands: p56Lck

CD4 is a co-receptor involved in immune response (co-receptor activity in binding to MHC class II molecules) and HIV infection (human immunodeficiency virus; CD4 is primary receptor for HIV-1 surface glycoprotein gp120). CD4 regulates T-cell activation, T/B-cell adhesion, T-cell differentiation, T-cell selection and signal transduction. Defects in antigen presentation (MHC class II) cause dysfunction of CD4+ T-cells and their almost complete absence in patients blood, tissue and organs (SCID immunodeficiency).

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## anti-human CD5 PE-conjugated

PE- conjugated monoclonal antibody LT1 to CD5 (Human)

Cat-No: **21380054S**

100 µl

**Clone:** LT1

**Specificity:** The antibody LT1 recognizes CD5 antigen, a 67 kDa monomeric type I transmembrane glycoprotein expressed on thymocytes, T lymphocytes and a subset of B lymphocytes, but not on natural killer (NK) cells.

**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:** In humans CD5 is a 67 kDa T lymphocyte single chain transmembrane glycoprotein. It is present on all mature T lymphocytes, on most thymocytes and on many T cell leukemias and lymphomas. It reacts with a subpopulation of activated B cells. It has been identified as the major ligand of the B cell antigen CD72. The frequency of CD5+ B cells exhibits strain dependent variation, and the phenotypic, anatomical, functional, developmental, and pathological characteristics of the CD5+ B cells suggest that they may represent a distinct lineage, known as B1 cells. Binding of CD5 on the T cell surface can augment alloantigen or mitogen induced lymphocyte proliferation and induces increased cytosolic free calcium, IL2 secretion, and IL2R expression. It has been proposed that CD5 negatively regulates signal transduction mediated by the T cell and B cell receptors.

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

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## anti-human CD6 PE-conjugated

PE -conjugated monoclonal antibody HI210 to human CD6

Cat-No: **21810064S**

100 µl

**Clone:** HI210

**Specificity:** The HI210 antibody reacts with CD6, a 100-130 kDa single chain transmembrane glycoprotein. CD6, also known as T12, is a member of the scavenger receptor superfamily found on T and B cell subsets, thymocytes and acute lymphocytic leukemia cells (ALL) and is involved in T-cell development and activation, as well as thymocyte adhesion. CD6 interacts with CD166, also known as ALCAM. Gene location: human chromosome 11q13

**Isotype subclass:** Mouse IgG1

**Form:** The purified antibody is conjugated with R-Phycoerythrin (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:** CD6 is expressed at low levels on immature thymocytes, and at high levels on mature thymocytes. CD6 is also expressed at high levels on peripheral blood T cells and at low levels on most peripheral blood B cells. High levels of CD6 are present in T-cell malignancies and certain Bcell malignancies including B-CLL. CD6 not only is expressed on all CD5+ B-CLL, but also on CD5- B-CLL, suggesting a broader distribution of CD6 than CD5 in B-cell malignancies. It is found recently CD6 is also on a minor subset of myeloid malignancies. CD6 functions as an adhesion molecule as well as a costimulatory molecule for T cell activation. The ligand for CD6 is CD166.

### References:

\*) Schlossman S. et al., eds. 1995. Leucocyte Typing V: White Cell Differentiation Antigens. P246, Oxford University Press, New York.

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## anti-human CD7 PE-conjugated

PE -conjugated monoclonal antibody LT7 to CD7 (Human)

Cat-No: **21380074S**

100 µl

**Clone:** LT7

**Specificity:** The antibody LT7 reacts with CD7, a 40 kD type I transmembrane glycoprotein expressed on peripheral blood T lymphocytes, NK-cells, hematopoietic progenitors, monocytes (weakly) and also on acute lymphocytic leukemia.

**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:

- \*) Leukocyte Typing VI., Kishimoto T. et al. (Eds.), Garland Publishing Inc. (1997).
- \*) Alaibac M and others: CD7 expression in reactive and malignant human skin T-lymphocytes. *Anticancer Res.* 2003
- \*) Lam GK and others: Expression of the CD7 ligand K-12 in human thymic epithelial cells: regulation by IFN-gamma. *J Clin Immunol.* 2005 Jan;25(1):41-9.

**Background:** CD7 is a 40 kDa transmembrane , single-chain glycoprotein, which is a member of the immunoglobulin superfamily. CD7 is expressed by the majority of thymocytes and mature T cells, NK cells and pre-B cells. It plays an essential role in T-cell interactions and also in T-cell/B-cell interaction during early lymphoid development.

The function of CD7 is not yet known although cross-linking of CD7 with antibodies induces a T cell transmembrane calcium flux and CD7 expression is induced by ionomycin. The CD7 molecule has been reported to be the receptor of the IgM-Fc portion (FcR mu) on the surface of T cells.

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## anti-human CD8 PE-conjugated

**PE** - conjugated monoclonal antibody HIT8a to human CD8

Cat-No: **21810084S**

100 µl

**Clone:** HIT8a

**Specificity:** The CD8 (HIT8a) antibody recognizes a 68-kDa type-I trans-membrane glycoprotein that consists of two disulfide-linked chains that form alpha homodimers or alpha/beta heterodimers. The most frequent CD8 antigen is CD8 alpha/beta heterodimer, which is expressed on 13-48% peripheral blood suppressor/cytotoxic T lymphocytes (Ts/Tc) and 70-80% thymocytes. In addition, a proportion of  $\gamma\delta$ T cells and NK cells express CD8 $\alpha$  homodimers. CD8 $\beta$  requires the presence of CD8 $\alpha$  to be expressed on the cell surface. CD8 antigen is co-receptor for HLA class-I molecules.

**Isotype subclass:** Mouse 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.

**Application:** Flow Cytometry

**Background:** The CD8 T cell coreceptor (monomer approx. 32-34 kDa) is expressed as ab heterodimer on majority of MHC I-restricted conventional T cells and thymocytes and as aa homodimer on subsets of memory T cells, intraepithelial lymphocytes, NK cells and dendritic cells. Regulation of CD8b level on T cell surface seems to be an important mechanism to control their effector function. Assembly of CD8 a-b but not a-a dimers is connected with formation or localization to the lipid rafts. Recruiting triggered TCR complexes to these membrane microdomains as well as affinity of TCR to MHC I is modulated by CD8, thereby affecting the functional diversity of the TCR signaling.

### References:

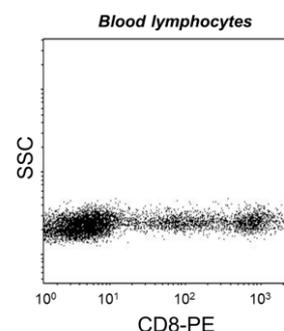
- Schlossman S. et al., eds. 1995. Leucocyte Typing V: White Cell Differentiation Antigens. P246, Oxford University Press, New York
- Shen DC., et al., 1990. Shanghai J. of Immunol. 10(3):147
- Yang CY., et al. 1993. J. of Monoclonal Antibody. 9(4):42.

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

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## anti-human CD9 PE-conjugated

PE - conjugated monoclonal antibody HI9a to human CD9

Cat-No: **21810094S**

100 µl

**Clone:** HI9a

**Specificity:** The antibody HI9a recognizes an epitope on second extracellular domain (EC2) of CD9 antigen, a 24 kDa transmembrane protein expressed on platelets, monocytes, pre-B lymphocytes, granulocytes and activated T lymphocytes.

**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:** 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:

\*) Schlossman S., L. Bloumsell, W. Gilks, et al., eds. 1995. Leucocyte Typing V: White Cell Differentiation Antigens. P : 246 Oxford University Press, New York.

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## anti-human CD11a PE-conjugated

PE - conjugated monoclonal antibody HI111 to human CD11a

Cat-No: **21810114S**

100 µl

**Clone:** HI111

**Specificity:** The antibody HI111 reacts with CD11a (α-subunit of human LFA-1), a 180 kDa type I transmembrane glycoprotein expressed on B and T lymphocytes, monocytes, macrophages, neutrophils, basophils and eosinophils. HLDA IV; WS Code NL 209

**Isotype subclass:** Mouse IgG1

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

**Physical state:** Liquid

**Buffer/Additives/Preservative:** PBS containing BSA (1%) 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 (LFA-1a) together with CD18 constitute leukocyte function-associated antigen 1 (LFA-1), the αLb2 integrin. CD11a is implicated in activation of LFA-1 complex. LFA-1 is expressed on the plasma membrane of leukocytes in a low-affinity conformation. Cell stimulation by chemokines or other signals leads to induction the high-affinity conformation, which supports tight binding of LFA-1 to its ligands, the intercellular adhesion molecules ICAM-1, -2, -3. LFA-1 is thus involved in interaction of various immune cells and in their tissue-specific settlement, but participates also in control of cell differentiation and proliferation and of T-cell effector functions. Blocking of LFA-1 function by specific antibodies or small molecules has become an important therapeutic approach in treatment of multiple inflammatory diseases. For example, humanized anti-LFA-1 antibody Efalizumab (Raptiva) is being used to interfere with T cell migration to sites of inflammation; binding of cholesterol-lowering drug simvastatin to CD11a allosteric site leads to immunomodulation and increase in lymphocytic cholinergic activity.

### References:

1. Leucocyte Typing IV. Knapp W et al. (Eds.), Oxford University Press (1989).
2. Bazil V. et al., Folia Biol. (Praha) 36, 41 (1990).

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## anti-human CD11c PE-conjugated

PE-conjugated monoclonal antibody BU15 to CD11c (Human)

**Cat-No: 21487114S**

100 µl

**Clone: BU15**

**Specificity:** The antibody BU15 reacts with CD11c ( $\alpha$ X, p150), a 150 kDa integrin expressed mainly on dendritic cells and tissue macrophages.

**HLDA III; WS Code M 256**

**HLDA V; WS Code AS S143**

**HLDA VI; WS Code AS Ref.6**

**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:** **CD11c** (p150,  $\alpha$ X integrin subunit) forms complex with CD18 ( $\beta$ 2 integrin subunit) and is expressed mainly on tissue macrophages and dendritic cells. CD11c binds to complement fragment iC3b, fibrinogen, VCAM-1 and ICAM-2 or e.g. CD90. Like other  $\beta$ 2 integrins, CD11c/CD18 plays roles in cell migration and phagocytosis. Moreover, interaction of CD11c/CD18 with plasminogen regulates plasmin activities, and interaction with heparin counteracts binding of iC3b.

### References:

\*Sadhu C and others: J Leukoc Biol. 2007 Jun;81(6):1395-403.

\*Gang J and others: Mol Cells. 2007 Oct 31;24(2):240-6.

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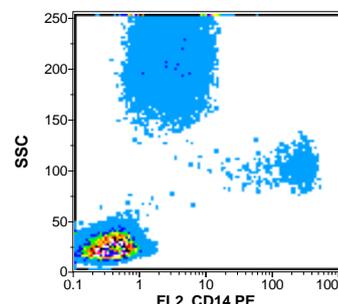
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## anti-human CD14 PE-conjugated

PE-conjugated monoclonal antibody 18D11 to human CD14

Cat-No: 21620144S

100 µl



**Clone:** 18D11

**Specificity:** The 18D11 antibody recognizes the CD14 antigen (LPS receptor) expressed strongly on the surface of monocytes, weakly on the surface of granulocytes, macrophages, dendritic cells and B-cells. On flow cytometry it stains > 90% of human peripheral blood monocytes. The antibody is LPS neutralising.

**Isotype subclass:** Mouse monoclonal IgG1

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

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

**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:** The 18D11 antibody is well suited for detection of CD14 in flow cytometry.

### References:

D. Mason, D. et al. (eds), Leucocyte Typing 7, in press, Oxford University Press, Oxford, U.K., 2002

**Background:** CD14 is a 55 kDa GPI-anchored glycoprotein, constitutively expressed on the surface of mature monocytes, macrophages, and neutrophils, where serves as a multifunctional lipopolysaccharide receptor; it is also released to the serum both as a secreted and enzymatically cleaved GPI-anchored form. CD14 binds lipopolysaccharide molecule in a reaction catalyzed by lipopolysaccharide-binding protein (LBP), an acute phase serum protein. The soluble sCD14 is able to discriminate slight structural differences between lipopolysaccharides and is important for neutralization of serum allochthonous lipopolysaccharides by reconstituted lipoprotein particles. CD14 affects allergic, inflammatory and infectious processes.

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## anti-human CD15 PE-conjugated

PE- conjugated monoclonal antibody HI98 to human CD15

Cat-No: **21810154S**

100 µl

**Clone:** HI98

**Specificity:** The antibody HI98 reacts with CD15, a cell membrane molecule 3-fucosyl-N-acetylglucosamine (3-FAL) strongly expressed on granulocytes, monocytes, macrophages, mast cells; it is also present on Langerhans cells and some myeloid precursors cells. HLDA VI; WS Code AS A053

**Isotype subclass:** Mouse IgM

**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.

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

**Physical state:** Liquid

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

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

**Application:** Flow Cytometry

**Background:** CD15 (Lewis X, Le(x); stage specific embryonic antigen-1, SSEA-1) is a trisaccharide determinant (3-fucosyl-N-acetylglucosamine) expressed on several glycolipids, glycoproteins and proteoglycans of various cell types, e.g. granulocytes, mast cells, monocytes, macrophages, cells of gastric mucosa, nervous system or various tumour cells. There are several variants of Lewis x, such as sialyl-Lewis x or sulphated Lewis x. Cells with high surface expression of Le(x) antigen exhibit strong self-aggregation, based on calcium-dependent Le(x)-Le(x) interaction. This process is involved for example in embryo compaction or in autoaggregation of teratocarcinoma cells. Sialyl-Le(x) and its isomer sialyl-Le(a) are ligands of selectins. CD15 expression has been extensively used to confirm diagnosis of Hodgkin's disease.

**References:** Leucocyte Typing IV. Knapp W et al. (Eds.), Oxford University Press (1989).

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## anti-human CD19 PE-conjugated

PE -conjugated monoclonal antibody LT19 to human CD19

Cat-No: **21270194S**

100 µl

**Clone:** LT19

**Specificity:** The antibody LT19 reacts with CD19 (B4), a 95 kDa type I transmembrane glycoprotein (immunoglobulin superfamily) expressed on B lymphocytes and follicular dendritic cells; it is lost on plasma cells.

**Isotype subclass:** 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. Do not freeze. Avoid prolonged exposure to light.

**Application:** The reagent is designed for Flow Cytometry analysis

### References:

\*) Elias F, Flo J, Lopez RA, Zorzopulos J, Montaner A, Rodriguez JM: Strong cytosine-guanosine-independent immunostimulation in humans and other primates by synthetic oligodeoxynucleotides with PyNTTTTGT motifs. *J Immunol.* 2003 Oct 1; 171(7):3697-704.

\*) Lin CW, Liu TY, Chen SU, Wang KT, Medeiros LJ, Hsu SM: CD94 1A transcripts characterize lymphoblastic lymphoma/leukemia of immature natural killer cell origin with distinct clinical features. *Blood.* 2005 Nov 15; 106(10):3567-74. Epub 2005 Jul 26.

**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.

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## anti-human CD20 PE-conjugated

PE-conjugated monoclonal antibody LT20 to human CD20

Cat-No: **21279204S**

100 µl

**Clone:** LT20

**Specificity:** The antibody LT20 reacts with CD20 (Bp35), a 33-37 kDa non glycosylated membrane receptor with four transmembrane domains, expressed on B lymphocytes (it is lost on plasma cells), follicular dendritic cells and at low levels on peripheral blood T lymphocytes.

**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 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:

\*Leucocyte Typing VII. Mason D. et al. (Eds.), Oxford University Press (2002).

\*Olyak MJ, Deans JP.: Cancer Res. 2003 Sep 1;63(17):5480-9.

\*Teeling JL, et al.: J Immunol. 2006 Jul 1;177(1):362-71.

**Background:** CD20 is a cell surface 33-37 (depending on the degree of phosphorylation) kDa non-glycosylated surface phosphoprotein expressed on mature and most malignant B cells, but not stem cells or plasma cells (low number of the CD20 has been also detected on a subpopulation of T lymphocytes and it can be expressed on follicular dendritic cells). Its expression on B cells is synchronous with the expression of surface IgM. CD20 regulates transmembrane calcium conductance (probably functioning as a component of store-operated calcium channel), cell cycle progression and B-cell proliferation. It is associated with lipid rafts, but the intensity of this association depends on extracellular triggering, employing CD20 conformational change and/or BCR (B cell antigen receptor) aggregation. After the receptor ligation, BCR and CD20 colocalize and then rapidly dissociate before BCR endocytosis, whereas CD20 remains at the cell surface. CD20 serves as a useful target for antibody-mediated therapeutic depletion of B cells, as it is expressed at high levels on most B-cell malignancies, but does not become internalized or shed from the plasma membrane following mAb treatment.

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## anti-human/-porcine /-bovine CD21 PE-conjugated

PE-conjugated monoclonal Antibody LT21 to CD21

Cat-No: **21270214S**

100 µl

**Clone:** LT21

**Specificity:** The antibody LT21 reacts with CD21 (CR2), a 145 kDa transmembrane glycoprotein (complement C3d receptor – C3dR) expressed on B lymphocytes, follicular dendritic cells, some epithelial cells and a subset of T lymphocytes. It is not expressed on immature B cells.

**HLDA VI; WS Code B CD21.1**

**Species Reactivity:** human, porcine, bovine

**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

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

**Background:** CD21 (complement receptor 2, CR2) binds C3 complement fragments, especially its breakdown fragments, which remain covalently attached to complement activating surfaces or antigen. CD21 has important roles in uptake and retention of immunocomplexes, survival of memory B cells and in development and maintenance of the humoral response to T-dependent antigens. CD21 also serves as a key receptor for Epstein-Barr virus binding and is involved in targeting prions to follicular dendritic cells and expediting neuroinvasion following peripheral exposure to prions. A soluble form of the CD21 (sCD21) is shed from the lymphocyte surface and retains its ability to bind respective ligands.

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## anti-human CD22 PE-conjugated

PE-conjugated monoclonal antibody HIB22 to CD22 (Human)

Cat-No: **21810224S**

100 µl

**Clone:** HIB22

**Specificity:** The antibody HIB22 reacts with CD22 (BL-CAM), a 130 kDa type I transmembrane glycoprotein (immunoglobulin superfamily) expressed in the cytoplasm of pro-B and pre-B lymphocytes, and on the surface of mature and activated B lymphocytes; it is lost on plasma cells, peripheral blood T lymphocytes, granulocytes and monocytes.

**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

### References:

\*) Leucocyte Typing V. Schlossmann S. et al. (Eds.), White Cell Differentiation Antigens, Oxford University Press New York (1995).

**Background:** **CD22**, also known as Siglec-2 (sialic acid-binding immunoglobulin-like lectin-2) is a transmembrane glycoprotein binding alpha2,6-linked sialic acid-bearing ligands. Intracellular domain of CD22 recruits protein tyrosine phosphatase SHP-1 through the immunoreceptor tyrosine-based inhibitory motifs (ITIMs), thus setting a threshold for B cell receptor-mediated activation. CD22 also regulates B-cell response by involvement in controlling the CD19/CD21-Src-family protein tyrosine kinase amplification pathway and CD40 signaling. CD22 exhibits hallmarks of clathrin-mediated endocytic pathway.

The ligands for CD22 are CD45RO antigen on T cells and CD75 antigen on B cells participating in the homotypic interaction of T and B cells.

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## anti-human CD25 PE-conjugated

PE - conjugated monoclonal antibody HI25a to human CD25

Cat-No: **21810254S**

100 µl

**Clone:** HI25a

**Specificity:** The antibody HI25a reacts with CD25 (Interleukin-2 receptor  $\alpha$  chain), a 55 kDa type I transmembrane glycoprotein expressed on activated B and T lymphocytes, activated monocytes/macrophages and on CD4+ T lymphocytes (T regulatory cells); it is lost on resting B and T lymphocytes. Antigen density of CD25 is upregulated by the stimulation of PHA, ConA and CD3 antibody

**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

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

**Background:** CD25 (IL2R $\alpha$ , 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. Humanized anti CD25 antibodies represent a useful tool to reduce the incidence of allograft rejection as well as the severity of graft versus host reaction, and radioimmunoconjugates of anti-CD25 antibodies can be used against CD25 expressing lymphomas.

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## anti-human CD27 PE-conjugated

**PE** - conjugated monoclonal antibody LT27 to human CD27

Cat-No: **21270274S**

100 µl

**Clone:** LT27

**Specificity:** The antibody LT27 reacts with CD27 ( T14), a 50-55 kDa type I transmembrane glycoprotein (Member of the TNF- receptor superfamily) expressed on medullary thymocytes, peripheral T- lymphocytes, some B- lymphocytes and NK cells.

HLDA V; WS Code T T-CD27.01

**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:** The reagent is designed for Flow Cytometry analysis.

### References:

\*) van Oers MH, Pals ST, Evers LM, van der Schoot CE, Koopmann G, Bonfrer JM, Hintzen RQ, von dem Borne AE, van Lier RA: Expression and release of CD27 in human B-cell malignancies. Blood: 1993 Dec 1;82(11):3430-6 and others.

**Background:** CD27 is a transmembrane 55 kDa protein of the nerve growth factor-receptor family, expressed as a disulfide-linked homodimer on mature thymocytes, peripheral blood T cells and a subpopulation of B cells. Activation of T cells via TCR-CD3 complex results in upregulation of CD27 expression on the plasma membrane as well as in the release of its soluble 28-32 kDa form, sCD27, detected in the plasma, urine or spinal fluid. This sCD27 is an important prognostic marker of acute and chronic B cell malignancies. RgpA, a cystein proteinase, although activating T cells through the protease-activated receptors (PARs), degrades CD27 and counteracts T cell activation mediated by CD27 and its ligand CD70.

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## anti-human CD33 PE-conjugated

**PE** - conjugated monoclonal antibody to human CD33

Cat-No: **21270334S**

100 µl

**Clone:** HIM3-4

**Specificity:** The antibody HIM3-4 reacts with CD33, a 67 kDa type I transmembrane glycoprotein (immunoglobulin superfamily) expressed on myeloid progenitors, monocytes, granulocytes, dendritic cells and mast cells; it is absent on platelets, lymphocytes, erythrocytes and hematopoietic stem cells.

**HLDA V; WS Code M MA112**

**HLDA VI; WS Code M MA47**

**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:** The reagent is designed for Flow Cytometry analysis of human blood cells.

### References:

\*Leukocyte Typing V., Schlossman S. et al. (Eds.), Oxford University Press (1995).

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

\*Ulyanova T, Blasioli J, Woodford-Thomas TA, Thomas ML: The sialoadhesin CD33 is a myeloid-specific inhibitory receptor. Eur J Immunol. 1999 Nov;29(11):3440-9.

**Background:** CD33 is a transmembrane protein of the sialic acid-binding immunoglobulin-like lectin (Siglec) family. It belongs to the immunoreceptor tyrosine-based inhibitory motif (ITIM)-containing molecules able of recruiting protein tyrosine phosphatases SHP-1 and SHP-2 to signal assemblies; these ITIMs are also used for ubiquitin-mediated removal of the receptor from the cell surface. CD33 is expressed on cells of myelomonocytic lineage, binds sialic acid residues in N- and O-glycans on cell surfaces, and is a therapeutic target for acute myeloid leukemia.

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## anti-human CD37 PE-conjugated

PE-conjugated monoclonal antibody HH1 to human CD37

Cat-No: **21620374S**

100 µl

**Clone:** HH1

**Specificity:** This antibody recognizes the CD37 antigen on human B cells (1). On flow cytometry it stains approximately 2-10% of human peripheral blood mononuclear cells strongly. This antibody has been studied at the 3. International Workshop on Human Leucocyte Differentiation Antigens (2).

**Isotype subclass:** Mouse monoclonal 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.Do not freeze. Avoid prolonged exposure to light..

**Application:** The HH1 antibody is well suited for detection of CD37 by flow cytometry.

### References:

- 1.) Barclay, Brown et al., The Leucocyte Antigen FactsBook, 2<sup>nd</sup> edition, Harcourt Brace & Company, London, (1997)
- 2.) McMichael, A.J. et al. (eds.), Leucocyte typing 3., Oxford University Press, Oxford, (1987)

**Background:** CD37, also known as TSPAN26, is a 40 - 45 kDa palmitoylated tetraspanin superfamily glycoprotein that is expressed by lymphocytes and myeloid cells. CD37 directly associates with dectin-1 on macrophages and stabilizes cell surface dectin-1 expression. It also inhibits T cell activation and proliferation by limiting T cell receptor signaling. Human CD37 shares 80% amino acid sequence identity with mouse and rat CD37.

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## anti-human CD38 PE-conjugated

PE -conjugated monoclonal antibody HIT2 to human CD38

Cat-No: **21270384S**

100 µl

**Clone:** HIT2

**Specificity:** The antibody HIT2 reacts with CD38 (T10), a 45 kDa type II transmembrane glycoprotein strongly expressed mainly on plasma cells and activated T and B lymphocytes; it is an antigenic marker of lymphoid cells.

**HLDA III; WS Code T 155**

**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).

**Storage conditions:** Store at 4 °C. Avoid prolonged exposure to light. The reagent is stable until the expiry date stated on the vial label.

**Application:** Flow cytometry

**Background:** CD38 (NAD<sup>+</sup> glycohydrolase) is a type II transmembrane glycoprotein able to induce activation, proliferation and differentiation of mature lymphocytes and mediate apoptosis of myeloid and lymphoid progenitor cells. Another role of CD38 is provided by enzymatic activity of its extracellular part. CD38 acts as NAD<sup>+</sup> glycohydrolase converting NAD<sup>+</sup> into ADP-ribose, as ADP-ribosyl cyclase producing cADPR and as cADPR hydrolase, thus affecting levels of calcium-mobilizing metabolites. ADPR produced by CD38 serves as an important second messenger of neutrophil and dendritic cell migration.

### References:

- \*) Lund FE, Muller-Steffner H, Romero-Ramirez H, Moreno-García ME, Partida-Sánchez S, Makris M, Oppenheimer NJ, Santos-Argumedo L, Schuber F: CD38 induces apoptosis of a murine pro-B leukemic cell line by a tyrosine kinase-dependent but ADP-ribosyl cyclase- and NAD glycohydrolase-independent mechanism. *Int Immunol.* 2006 Jul;18(7):1029-42.
- \*) Partida-Sanchez S, Gasser A, Fliegert R, Siebrands CC, Dammermann W, Shi G, Mousseau BJ, Sumoza-Toledo A, Bhagat H, Walseth TF, Guse AH, Lund FE. Chemotaxis of mouse bone marrow neutrophils and dendritic cells is controlled by adp-ribose, the major product generated by the CD38 enzyme reaction. *J Immunol.* 2007 Dec 1;179(11):7827-39.

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## anti-human CD40 PE-conjugated

PE-conjugated monoclonal antibody HI40a to human CD40

Cat-No: **21270404S**

100 µl

**Clone:** HI40a

**Specificity:** The antibody HI40a recognizes CD40 (BP50), a 48 kDa type I single chain transmembrane glycoprotein expressed on normal and neoplastic B cells, but not on terminally differentiated plasma cells. CD40 antigen is also present on Hodgkin's and Reed-Sternberg cells, follicular dendritic cells, some macrophages, basal epithelial cells and endothelial cells.

**Isotype subclass:** Mouse IgG1

**Form:** The purified antibody is conjugated with R-Phycoerythrin (R-PE) under optimum conditions. 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:

- \*) Oxenius A, Campbell KA, Maliszewski CR, Kishimoto T, Kikutani H, Hengartner H, Zinkernagel RM, Bachmann MF. J Exp Med. 1996 May 1;183(5):2209-18
- \*) Grewal IS, Flavell RA: Immunol Rev. 1996 Oct;153:85-106.
- \*) Pearson LL, Castle BE, Kehry MR: Int Immunol. 2001 Mar;13(3):273-83.
- \*) Wu W, Alexis NE, Chen X, Bromberg PA, Peden DB: Toxicol Appl Pharmacol. 2007 Dec 14

**Background:** CD40 is a costimulatory molecule of the TNF receptor superfamily and is expressed on many cell types, such as B cells, monocytes/macrophages, dendritic cells, endothelial cells, fibroblasts or vascular smooth muscle cells. Interaction of CD40 and its ligand CD154 (CD40L) is required for the generation of antibody responses to T-dependent antigens as well as for the development of germinal centers and memory B cells. In monocytes/macrophages CD40 engagement induces production of pro-inflammatory cytokines and chemokines. CD40-CD154 interactions are also critical for development of CD4 T cell-dependent effector functions. CD40 links innate and adaptive immune responses to bacterial stimuli and serves as an important regulator affecting functions of other costimulatory molecules.

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## anti-human CD41 PE-conjugated

PE-conjugated monoclonal antibody TR8 to CD41 (Human)

Cat-No: **21380414S**

100  $\mu$ l

**Clone:** TR8

**Specificity:** The antibody TR8 reacts with CD41 (GPIIb), a transmembrane glycoprotein (integrin family) composed of two chains GPIIb $\alpha$  (heavy chain; 120 kDa) and GPIIb $\beta$  (light chain; 23 kDa). CD41 is mainly expressed on platelets and megakaryocytes.

**Isotype subclass:** Mouse IgG1

**Physical state:** Liquid

**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.

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

**Physical state:** Liquid

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

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

**Application:** Flow Cytometry

**Background:** **CD41** (platelet glycoprotein IIb) is composed of two subunits (120 kDa  $\alpha$  and 23 kDa  $\beta$ ) that interact with CD61 in the presence of calcium to form a functional adhesive protein receptor. CD41 is non-covalently associated with CD61 (GPIIIa) to form the GPIIb/IIIa (CD41/CD61) complex. Upon blood vessel damage, this receptor binds to a variety of proteins including von Willebrand factor, fibrinogen, fibronectin and vitronectin. The CD41/CD61 complex is one of the earliest markers of the megakaryocytic lineage and acts as the receptor for fibrinogen, fibronectin, Von Willebrand factor, vitronectin, thrombin and mediates platelets aggregation. CD41 is mainly expressed on megakaryocyte-platelet lineage, but generally belongs to the antigens that are expressed during early stages of hematopoietic differentiation. The CD41/CD61 (GPIIb/IIIa) may be absent or strongly reduced in Glanzmann's thrombasthenia (GT).

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

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## anti-human CD42b PE-conjugated

PE - conjugated monoclonal antibody HIP1 to human CD42b

Cat-No: **21270424S**

100 µl

**Clone:** HIP1

**Specificity:** The antibody HIP1 reacts with CD42b (GPIb $\alpha$ ), a 135-145 kDa membrane glycoprotein expressed on platelets and megakaryocytes. CD42b and CD42c (GPIb $\beta$ ) are composed in a disulfide linked heterodimer (CD42b/c; 160 kDa); CD42b/c forms a noncovalent complex with CD42a and CD42d.

**HLDA IV; WS Code P 40**

**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

**References:** Leucocyte Typing IV. Knapp W et al. (Eds.), Oxford University Press (1989).

**Background:** CD42b (GPIb $\alpha$ ) composes together with GPIb $\beta$ , GPIX and GPV the GPIb-IX-V receptor complex critical in the process of platelet-rich thrombus formation by tethering the platelet to a thrombogenic surface. CD42b binds to von Willebrand factor (VWF) exposed at a site of vascular injury, as well as to thrombin, coagulation factors XI and XII, high molecular weight kininogen, TSP-1, integrin Mac-1 and P-selectin. The extracellular domain of CD42b by its interactions also contributes to metastasis.

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## anti-human CD43 PE-conjugated

PE-conjugated monoclonal antibody HI161 to human CD43

Cat-No: **21810434S**

100 µl

**Clone:** HI161

**Specificity:** The antibody HI161 recognizes neuraminidase-sensitive epitope on CD43 (Leukosialin), a 95-135 kDa type I transmembrane glycoprotein (mucin-type) which is involved in lymphocyte activation. CD43 is expressed by platelets and at high levels on the surface of all leukocytes; it is negative on resting B lymphocytes and erythrocytes.

HLDA IV; WS Code NL 604; HLDA V; WS Code AS S290

**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 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:** Leukocyte Typing VI. Tadimitsu K. et al. (Eds.), Garland Publishing Inc. (1997).

**Background:** CD43 (leukosialin, sialophorin) is a transmembrane mucin-like protein with high negative charge, expressed on the surface of most hematopoietic cells. CD43 contributes to a repulsive barrier that interferes with cellular adhesion, however, in certain cases also promotes leukocyte aggregation. By interaction with actin-binding proteins ezrin and moesin CD43 plays a regulatory role in remodeling T-cell morphology and regulates cell-cell interactions during lymphocyte traffic. CD43 signaling both enhances LFA-1 adhesiveness and counteracts LFA-1 induction via other receptors. Expression of CD43 causes induction of functionally active tumour suppressor p53 protein, but in case of p53 and ARF deficiency CD43 promotes tumour proliferation and viability. It appears to be an important modulator of leukocyte functions.

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## anti-human/anti mouse CD44 PE-conjugated

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

Cat-No: **21850444S**

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 R-Phycoerythrin (R-PE) 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.

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## anti-human CD45 PE-conjugated

PE - conjugated monoclonal antibody HI30 to human CD45

Cat-No: **21810454S**

100 µl

**Clone:** HI30

**Specificity:** The antibody HI30 reacts with all alternative forms of human CD45 antigen (Leukocyte Common Antigen), a 180-220 kDa single chain type I transmembrane protein expressed at high level on all cells of hematopoietic origin, except erythrocytes and platelets and non-hematopoietic tissues and cells. CD45 is critically required for T and B cell antigen receptor-mediated activation.

**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,

### References:

Horejsi V. et al., Folia Biol. (Praha) 34, 23 (1988).

Bazil V. et al., Immunogenetics 29, 202 (1989)

Leucocyte Typing III. McMichael A. J. et al (Eds.), Oxford University Press (1987).

Leucocyte Typing IV. Knapp W et al. (Eds.), Oxford University Press (1989).

**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.

**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.

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## anti-human CD45RA PE-conjugated

PE - conjugated monoclonal antibody HI100 to human CD45RA

Cat-No: **21819454S**

100 µl

**Clone:** HI100

**Specificity:** The antibody HI100 reacts with CD45RA, a 205-220 kDa single chain type I glycoprotein, variant of CD45 (CD45RA isoform). CD45RA is expressed on most of B lymphocytes, resting and native T lymphocytes, medullar thymocytes and monocytes.

**HLDA IV; WS Code NL 907**

**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:

Bazil V. et al., Immunogenetics 29, 202 (1989)

Leucocyte Typing IV. Knapp W et al. (Eds.), Oxford University Press (1989).

Leucocyte Typing V. Schlossman S. et al. (Eds.), Oxford University Press (1995).

**Background:** CD45RA is a high molecular weight isoform of a receptor-type protein tyrosine phosphatase, CD45 glycoprotein. CD45 is crucial in lymphocyte development and antigen signaling, serving as an important regulator of Src-family kinases, promotes cell survival by modulating integrin-mediated signal transduction pathway and is also involved in DNA fragmentation during apoptosis. CD45 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. CD45RA is expressed e.g. on naïve T cells and normal plasma cells.

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## anti-human/mouse CD49d PE-conjugated

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

Cat-No: **21858494S**

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 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:** 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  $\alpha$ 4 integrin expression during EAE.” The Journal of Exp Med

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## anti-human CD55 PE-conjugated

PE - conjugated monoclonal antibody HI55a to human CD55

Cat-No: **21810554S**

100 µl

**Clone:** HI55a

**Specificity:** The antibody HI55a recognizes an epitope in SCR4 domain of CD55 (Decay accelerating factor, DAF), a 60-70 kDa glycosylphosphatidylinositol (GPI)-anchored single chain glycoprotein. CD55 is widely expressed on hematopoietic and on many non-hematopoietic cells; it is weakly present on NK cells. HLDA V; WS Code AS S016

**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

**Background:** CD55 (decay-accelerating factor, DAF) is a GPI-anchored membrane glycoprotein that protects autologous cells from classical and alternative pathway of complement cascade. Bidirectional interactions between CD55 and CD97 are involved in T cell regulation and CD55 can still regulate complement when bound to CD97. In tumours, besides protection against complement, CD55 promotes neoangiogenesis, tumorigenesis, invasiveness and evasion of apoptosis

**References:** Leukocyte Typing V., Schlossman S. et al. (Eds.), Oxford University Press (1995).

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## anti-human CD56 PE-conjugated

PE - conjugated monoclonal antibody B-A19 to human CD56

Cat-No: **21810564S**

100 µl

**Clone:** B-A19

**Specificity:** The antibody B-A19 reacts with a 180 kDa isoform of CD56 (NCAM) expressed in leukocytes. It has been suggested that the antibody B-A19 could react with rhesus monkey lymphocytes. Reactivity with other NCAM isoforms has not been tested.

**HLDA VI; WS code A055, HLDA VI; WS Code NK26, HLDA VII; WS code 70077**

**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

### References:

- \*) Jakovcevski I, Mo Z, Zecevic N: Down-regulation of the axonal polysialic acid-neural cell adhesion molecule expression coincides with the onset of myelination in the human fetal forebrain. *Neuroscience*. 2007 Oct 26;149(2):328-37.
- \*) Ohishi Y, Kaku T, Oya M, Kobayashi H, Wake N, Tsuneyoshi M: CD56 expression in ovarian granulosa cell tumors, and its diagnostic utility and pitfalls. *Gynecol Oncol*. 2007 Oct;107(1):30-8.
- \*) McCluggage WG, McKenna M, McBride HA: CD56 is a sensitive and diagnostically useful immunohistochemical marker of ovarian sex cord-stromal tumors. *Int J Gynecol Pathol*. 2007 Jul;26(3):322-7.

**Background:** CD56 (NCAM, neural cell adhesion molecule) is a transmembrane glycoprotein of immunoglobulin family serving as adhesive molecule which is ubiquitously expressed in nervous system, usually as 120 kDa, 140 kDa or 180 kDa isoform, and it is also found on T cells and NK cells. Polysialic modification results in reduction of CD56-mediated cell adhesion and is involved in cell migration, axonal growth, pathfinding and synaptic plasticity. CD56 is a widely used neuroendocrine marker with a high sensitivity for neuroendocrine tumours and ovarian granulosa cell tumours.

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## anti-human CD57 PE-conjugated

PE - conjugated monoclonal antibody HI57a to human CD57

Cat-No: **21810574S**

100 µl

**Clone:** HI57a

**Specificity:** CD57 McAb recognizes a 110-115KD carbohydrate antigen called HNK-1. HNK-1 is not a specific marker for NK cells, being shared by cells belonging to different lineages. CD57 antigen is expressed on 12-20% of normal peripheral blood lymphocytes including a subset of NK cells and a subset of CD8+ Ts/Tc, and the expression increases with relation to age in peripheral blood lymphocytes, such as 25-40% in over 80 years. CD57 is not expressed by cord blood lymphocytes, B lymphocytes, monocytes, granulocytes, platelets and erythrocytes. CD57+ cells also increase in some pathologies characterized by an imbalance of CD4/CD8 lymphocytes, e.g., AIDS, autoimmune diseases, allograft transplants, viral infections. The CD57 molecule is shared by normal neural and striated muscle and their neoplastic counterparts including neurofibromas, neurofibrosarcomas and malignant melanomas. CD57 is also present on normal and neoplastic prostatic epithelia, where it represents a prognostic factor showing a positive correlation between the number of CD57+ cells and an increased survival of the neoplastic patients.

**Isotype subclass:** Mouse IgM

**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

**Reference:**

\*) Tadamitsu and others eds. 1997, Leucocyte Typing VI – White Cell Differentiation Antigens. Garland Publishing, Inc., New York

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## anti-human CD62P PE-conjugated

PE - conjugated monoclonal antibody to HI62P to CD62P (human)

Cat-No: **21270624S**

100 µl

**Clone:** HI62P

**Specificity:** The antibody HI62P recognizes CD62P (P-selectin), a 140 kD single chain type I transmembrane glycoprotein present in secretory  $\alpha$ -granules in platelets, in Weibel-Palade bodies in endothelial cells and in megakaryocytes; it is relocated to the plasma membrane upon activation.

**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

### References:

- \*Ramachandran V and other: 2001 Aug 28;98(18):10166-71.
- \*Ramachandran V and other: 2004 Sep 14;101(37):13519-24.
- \*Martinez M: 2005 Feb 18;280(7):5378-90.
- \*Harakawa N and other: 2007 Mar;19(3):321-9.

**Background:** CD62P (P-selectin) is an adhesion glycoprotein that is expressed on platelets and endothelial cells upon their activation. Interaction between CD62P and its mucin-like ligand PSGL-1 (P-selectin glycoprotein ligand-1) expressed on the microvilli of most leukocytes supports leukocyte rolling along postcapillary venules at the earliest time of inflammation. Both CD62P and PSGL-1 are extended glycoproteins that form homodimers. CD62P dimerization is probably mediated through interactions of the transmembrane domains and stabilizes leukocyte tethering and rolling, probably by increasing rebinding within a bond cluster.

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## anti-human CD69 PE-conjugated

PE- conjugated monoclonal Antibody FN50 to CD69 (Human)

Cat-No: **21620694S**

100 µl

**Clone:** FN50

**Specificity:** The antibody FN50 recognizes CD69, an lymphocyte early activation marker.  
**HLDA IV; WS Code A 91**

**Isotype subclass:** Mouse IgG1/kappa

**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:** The FN50 antibody is well suited for detection of CD69 in flow cytometry.

### References:

\*López-Cabrera M and other: 1993 Aug 1;178(2):537-47.

\*Nielsen SD and other: 1998 Oct;114(1):66-72.

\*Pitsios C and other: 2008;68(3):233-41.

\*Konjević G and other: 2007 Nov;37(11):887-96.

**Background:** CD69 (C-type lectin domain family 2 C, CLEC2C, also known as AIM) is one of the earliest inducible cell surface molecules acquired during leukocyte activation. This glycoprotein serves as a lectin-type receptor in lymphocytes, NK cells and platelets; it is involved in lymphocyte proliferation. CD69 expression is counteracted on T cells in the AIDS stage of HIV infection, and may be also predictive for clinical response to chemoimmunotherapy.

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## anti-human CD71 PE-conjugated

PE-conjugated Monoclonal Antibody HI166 to human CD71

Cat-No: **21810714S**

100 µl

**Clone:** HI166

**Specificity:** The antibody HI166 reacts with CD71 antigen (transferrin receptor), a 95 kDa type II homodimeric transmembrane glycoprotein expressed on activated B and T lymphocytes, macrophages and erythroid precursors; it is lost on resting blood leukocytes. The HI166 antibody inhibits CD71, Transferrin receptor activity.

**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

### References:

\*Leukocyte Typing IV., Knapp W. et al. (Eds.), Oxford University Press (1989).

\*Leukocyte Typing V., Schlossman S. et al. (Eds.), Oxford University Press (1995).

**Background:** CD71 (transferrin receptor) is a type II transmembrane glycoprotein expressed as homodimer in erythroid blood cell line and in activated leukocytes. CD71 antigen is expressed typically at high level on all proliferating cell, activated cells and erythroblasts or reticulocytes that require iron, but not on resting peripheral blood leukocytes and mature erythrocytes. CD71 antigen is also expressed at high level on cells of most neoplastic cell lines and 29-32% of bone marrow cells. A soluble form of CD71 in serum (plasma) exists besides a membrane form. Monitoring the soluble form of CD71 antigen in plasma is a diagnostic marker of anemia besides assaying plasma ferritin.

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## anti-human CD80 PE-conjugated

PE -conjugated monoclonal antibody MEM-233 to human CD80

Cat-No: **21270804S**

100 µl

**Clone:** MEM-233

**Specificity:** The antibody MEM-233 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:** 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. Do not freeze. Avoid prolonged exposure to light.

**Application:** The reagent is designed for Flow Cytometry analysis

### References:

\*Vasilevko V and others: DNA Cell Biol. 2002 Mar;21(3):137-49.

\*Yadav D and others: J Immunol. 2004 Sep 15;173(6):3631-9.

\*Thomas IJ and others: J Immunol. 2007 Nov 1;179(9):5936-46.

\*Eri R and others: Inflamm Bowel Dis. 2008 Jan 9

**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.

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## anti-human CD95 PE-conjugated

**PE** - conjugated monoclonal antibody LT95 to human CD95

Cat-No: **21278954S**

100 µl

**Clone:** LT95

**Specificity:** The antibody LT95 reacts with CD95 (Fas/APO-1), a 46 kDa single chain type I glycoprotein of the tumour necrosis factor/nerve growth factor (TNF/NGF) receptor superfamily, expressed on a variety of normal and neoplastic cells.

It seems that the antibody LT95 does not induce Fas mediated apoptosis, although it cross-blocks anti-Fas DX2 antibody that recognizes a functional epitope of Fas molecule.

**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:** The reagent is designed for Flow Cytometry analysis

### References:

\*Scaffidi C and others: 1998 Mar 16;17(6):1675-87.

\*Park DR and others: 2003 Jun 15;170(12):6209-16.

\*Guo Z and others: 2005 Sep 15;106(6):2033-41.

\*Brumatti G and others: 2008 Feb 1;314(3):554-63.

**Background:** CD95 (Fas, APO-1), a 46 kDa transmembrane glycoprotein, is a cell death receptor of the TNFR superfamily. Stimulation of CD95 results in aggregation of its intracellular death domains, formation of the death-inducing signaling complex (DISC) and activation of caspases. In type I cells caspase 3 is activated by high amounts of caspase 8 generated at the DISC, in type II cells low concentration of caspase 8 activates pathway leading to the release of cytochrome c from mitochondria and activation of caspase 3 by cytochrome c. Besides its roles in induction of apoptosis, Fas also triggers pro-inflammatory cytokine responses.

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## anti-human CD235a PE-conjugated

PE-conjugated monoclonal antibody HI264 to human CD235a

Cat-No: **21812354S**

100 µl

**Clone:** HI264

**Specificity:** The antibody HI264 recognizes N-terminal portion of glycophorin A. Its antigen is expressed on early erythroblasts, late erythroblasts, erythroblasts, mature erythrocytes and the cells of erythroid cell lines K562 and HEL, but not on all other cells. Mature, non-nucleated red blood cells are characteristically glycophorin A positive, but CD45 and CD71 negative.

**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:** The reagent is designed for Flow Cytometry analysis.

### References:

- \* Reid ME. 2009. Immunohematology 25:95.
- \* Palacajornsuk P. 2006. Immunohematology 22:171.
- \* Pasvol G. 2003. Trends Parasitol. 19:430.
- \* Takakuwa Y. 2001. Curr. Opin. Hematol. 8:80.

**Background:** **CD235a** is a transmembrane sialoglycoprotein expressed on erythrocytes and their precursors. GPA is the carrier of blood group M and N specificities which provides the cells with a large mucin-like surface, which minimalizes aggregation between erythrocytes in the circulation. Another function of CD235a is to be an membrane inhibitor of reactive lysis. CD235a is directed to papain-sensitive epitopes located in the extracellular specific domain of GPA, agglutinating papain-treated cells. CD235a a receptor of Hsa, an Streptococcus adhesin.

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## anti-human HLA-ABC PE-conjugated

PE -conjugated monoclonal antibody W6/32 to human HLA-ABC

Cat-No: **21159034S**

100 µl

**Clone:** W6/32

**Specificity:** The anti-human HLA-ABC monoclonal antibody recognizes an epitope common among 43 kDa chains of the HLA-ABC antigens. These antigens appear on virtually every human nucleated cell. This antibody is suitable as a positive control for HLA tissue typing and crossmatching.

**Isotype subclass:** Mouse IgG2a

**Form:** The purified antibody is conjugated with R-Phycoerythrin (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 W6/32 monoclonal antibody reacts with the human major histocompatibility complex (MHC) class I, HLA-A, B, C. MHC class I antigens associated with beta 2-microglobulin are expressed by all human nucleated cells and are central in cell-mediated immune response and tumor surveillance. W6/32 mAb recognizes a non-polymorphic epitope shared among products of the HLA-A, B, and C loci and immunoprecipitates both 43 kDa and 11-12 kDa chains.

Crossreactivity is also seen in baboon, rhesus and cynomolgus monkey.

### References:

- \* Heike, M. et al (1996) Journal of Immunol. 156:2205-2213
- \* Pettersen, R.D. et al (1996) Journal of Immunol. 156:1415-1424
- \* King, A. et al (1996) Journal of Immunol.
- \* Polyak, S. et al (1997) Journal of Immunol 159:2177-2188

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## anti-human HLA-DR PE-conjugated

PE- conjugated monoclonal antibody LT-DR to human HLA-DR

Cat-No: **21388994S**

100 µl

**Clone:** LT-DR

**Specificity:** The antibody LT-DR recognizes common epitope on human HLA-DR which is dependent on the association of alpha and beta chains. DR is the isotype of human MHC Class II molecules expressed on antigen-presenting cells (APC; dendritic cells, B lymphocytes, monocytes, macrophages).

**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. Do not freeze. Avoid prolonged exposure to light

**Application:** The reagent is designed for Flow Cytometry analysis

**References:** Horejsi V and others: Tissue Antigens. 1986 Nov;28(5):288-97.

**Background:** HLA-DR is a transmembrane human major histocompatibility complex 2 (MHC II) family member and consists of a 34 kDa (alpha) subunit and one of several 28 kDa (beta) subunits. HLA-Dr is expressed primarily on B cells on which it presents antigenic peptides for recognition by the T cell receptor on CD4+T cells. This interaction is central to antigen specificity in the adaptive immune response. HLA-DR alleles, polymorphisms and aberrant expression are linked to a variety of diseases including autoimmunity and cancer.

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## anti-human HLA-DR PE-conjugated

PE-conjugated monoclonal antibody HI43 to human HLA-DR

Cat-No: **21819984S**

100 µl

**Clone:** HI43

**Specificity:** The monoclonal antibody HI43 recognises a monomorphic determinant of human HLA DR which is expressed primarily on antigen presenting cells such as B lymphocytes, monocytes, macrophages and activated T lymphocytes.

**HLDA IV, WS Code: 88**

**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:** The reagent is designed for Flow Cytometry analysis.

**References:** □ \*Knapp and others: Leukocyte typing IV. 1989 Oxford University Press, New York

**Background:** HLA-DR, a member of MHC class II glycoproteins, that bind intracellularly processed peptides and present them to the Th cells, is composed of 36 kDa alpha chain and 27 kDa beta chain, both anchored in the plasma membrane. Together with other MHC II molecules HLA-DR plays a central role in the immune system

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# anti-human IFN gamma PE-conjugated

## Monoclonal Antibody B27 to IFN gamma (Human)

Cat-No: **21853534S**

100 µl

**Clone:** B27

**Specificity:** The antibody recognizes IFN gamma

**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:** Interferon- $\gamma$  is a potent multifunctional cytokine which is secreted primarily by activated NK cells and T cells. Originally characterized based on anti-viral activities, IFN- $\gamma$  also exerts anti-proliferative, immunoregulatory, and proinflammatory activities. IFN- $\gamma$  can upregulate MHC class I and II antigen expression by antigen-presenting cells. The B27 antibody reacts with the human interferon- $\gamma$ . The B27 antibody can neutralize the bioactivity of natural or recombinant IFN- $\gamma$ .

### References:

1. Andersson U, *et al.* 1999. Detection and quantification of gene expression. New York:Springer-Verlag.
2. Rout N, *et al.* 2010. PLoS One 5:e9787. (FC)

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## anti-human Interleukin-6 PE-conjugated

PE - conjugated monoclonal antibody to IL-6 (Human)

Cat-No: **21670064S**

100 µl

**Clone:** 8C9

**Specificity:** The antibody reacts with human IL-6.

**Isotype subclass:** Mouse IgG2b kappa

**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, Immunohistochemistry

**Background:** IL-6 is a cytokine with a wide variety of biological functions: it plays an essential role in the final differentiation of B-cells into immunoglobulin secreting cells, induces myeloma and plasmacytoma growth and induces also nerve cells differentiation. In hepatocytes it induces acute phase reactants

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## anti-human Interleukin-8 PE-conjugated

PE - conjugated monoclonal antibody to IL-8 (Human)

Cat-No: **21450084S**

100 µl

**Clone:** IT-7F8

**Specificity:** The antibody reacts with human IL-8.

**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:** Interleukin-8 is a chemokine produced by macrophages and other cell types such as epithelial cells. It is also synthesized by endothelial cells which store IL-8 in their storage vesicles, the Weibel-Palade bodies. When first encountering an antigen the primary cells to encounter it are the macrophages who phagocytose the particle. Upon processing they release chemokines to signal other immune cells to come in to the site of inflammation. IL-8 is one such chemokine. It serves as a chemical signal that attracts neutrophils at the site of inflammation, and therefore is also known as Neutrophil Chemotactic Factor.

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# anti-human Tumor Necrosis Factor- $\alpha$ PE-conjugated

PE - conjugated monoclonal antibody to TNF $\alpha$  (Human)

Cat-No: **21453014S**

100  $\mu$ l

**Clone:** IT-5H2

**Specificity:** The antibody recognizes human 17-26 kDa TNF- $\alpha$  .

**Isotype subclass:** Mouse 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:** TNF- $\alpha$  is a cytokine produced by monocytes, macrophages, neutrophils, NK cells, CD4+ T cells and many transformed cells. It can be expressed as a 17 kDa free molecule, or as a 26 kDa membrane protein. TNF- $\alpha$  easily forms stable trimers, but also other multimeric complexes. In the immune system, it is an important regulator, which has cytolytic and cytostatic activity against a range of tumor cells, increases fibroblast proliferation and supports neutrophil chemotaxis and phagocytosis.

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# mouse IgG1 Isotype control PE-conjugated

## PE-conjugated monoclonal antibody 1F8 to IgG1

Cat-No: **21815014S**

100 µl

**Clone:** 1F8

**Specificity:** This reagent can be used as a mouse IgG1 isotype control.

**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:** 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.

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## mouse IgG2a Isotype control PE-conjugated

**PE** - conjugated monoclonal antibody X5563 to IgG2a

Cat-No: **21815024S**

100 µl

**Clone:** X5563

**Specificity:** This reagent can be used as a mouse IgG2a isotype control.

**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.

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

**Physical state:** Liquid

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

**Storage conditions:** Store at 4 °C. Do not freeze. 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.

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## mouse IgG2b Isotype control PE-conjugated

PE-monoclonal antibody TG1.7 to IgG2b

Cat-No: **21815034S**

100 µl

**Clone:** TG1.7

**Specificity:** This reagent can be used as a mouse IgG2b isotype control.

**Isotype subclass:** Mouse 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:** 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.

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# 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<sup>2+</sup> 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<sup>2+</sup> 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<sup>6</sup>) in 500 µl binding buffer (PBS with Ca<sup>2+</sup> = 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

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## anti-human CD3 PerCP-conjugated

PerCP-conjugated monoclonal antibody to CD3 (Human)

Cat-No: **21620035S**

100 µl

**Clone:** UCHT-1

**Specificity:** The antibody UCHT1 recognizes the CD3 antigen of the TCR/CD3 complex on mature human T cells. The UCHT1 antibody reacts with the epsilon chain of the CD3 complex.

**HLDA I; WS Code T 3 / HLDA III; WS Code T 126 / HLDA III; WS Code T 471 / HLDA VI; WS Code T 6T-CD3.1**

**Isotype subclass:** Mouse IgG1k

**Form:** The purified antibody is conjugated with Peridin Chlorophyll (PerCP) 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:

\*Huang Y, Wang RL: J Biol Chem. 2004 Jul 9;279(28):28827-30.

\*Kuhns MS and others: Immunity. 2006 Feb;24(2):133-9.

\*Alarcón B and others: EMBO Rep. 2006 May;7(5):490-5.

**Background:** CD3 complex is crucial in transducing antigen-recognition signals into the cytoplasm of T cells and in regulating the cell surface expression of the TCR complex. T cell activation through the antigen receptor (TCR) involves the cytoplasmic tails of the CD3 subunits CD3 gamma, CD3 delta, CD3 epsilon and CD3 zeta. These CD3 subunits are structurally related members of the immunoglobulins super family encoded by closely linked genes on human chromosome 11. The CD3 components have long cytoplasmic tails that associate with cytoplasmic signal transduction molecules. This association is mediated at least in part by a double tyrosine-based motif present in a single copy in the CD3 subunits. CD3 may play a role in TCR-induced growth arrest, cell survival and proliferation. The CD3 antigen is present on 68-82% of normal peripheral blood lymphocytes, 65-85% of thymocytes and Purkinje cells in the cerebellum. It is never expressed on B or NK cells. Decreased percentages of T lymphocytes may be observed in some autoimmune diseases.

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## anti-human CD4 PerCP-conjugated

PerCP -conjugated monoclonal antibody EDU-2 to human CD4

Cat-No: **21278045S**

100 µl

**Clone:** EDU-2

**Specificity:** The antibody EDU-2 recognizes CD4 antigen, a 55 kDa transmembrane glycoprotein expressed on a subset of T lymphocytes ("helper" T-cells) and also on monocytes, tissue macrophages and granulocytes.  
**HLDA II.; WS Code T 107 / HLDA III.; WS Code T 512**

**Isotype subclass:** Mouse IgG2a

**Form:** The purified antibody is conjugated with Peridinin Chlorophyll (PerCP) 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:

\*) Millan J, Cerny J, Horejsi V, Alonso MA.: CD4 segregates into specific detergent-resistant membrane microdomains. Tissue Antigens. 1999 Jan; 53(1):33-40 and others

**Background:** CD4 is a single chain transmembrane glycoprotein and belongs to immunoglobulin supergene family. In extracellular region there are 4 immunoglobulin-like domains (1 Ig-Like V-type and 3 Ig-like C2-Type). Transmembrane region forms 25aa, cytoplasmic tail consists of 38 aa. Domains 1, 2 and 4 are stabilized by disulfide bonds. The intracellular domain of CD4 is associated with p56Lck, a Src-like protein tyrosine kinase. It was described, that CD4 segregates into specific detergent-resistant T-cell membrane microdomains.

Extracellular ligands: MHC class II molecules (binds to CDR2-like region in CD4 domain 1; HIV envelope protein gp120 (binds to CDR2-like region in CD4 domain 1); IL-16 (binds to CD4 domain 3), Human seminal plasma glycoprotein gp17 (binds to CD4 domain 1), L-selectin

CD4 is a co-receptor involved in immune response (co-receptor activity in binding to MHC class II molecules) and HIV infection (human immunodeficiency virus; Cd4 is primary receptor for HIV-1 surface glycoprotein gp120). CD4 regulates T-cell activation, T/B-cell adhesion, T-cell differentiation, T-cell selection and signal transduction. Defects in antigen presentation (MHC classII) cause dysfunction of CD4+ T-cells and their almost complete absence in patients blood, tissue and organs (SCID immunodeficiency).

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## anti-human CD8 PerCP-conjugated

PerCP-conjugated monoclonal antibody UCHT-4 to human CD8

Cat-No: **21620085S**

100 µl

**Clone:** UCHT-4

**Specificity:** The UCHT-4 antibody recognises the CD8 alpha antigen on human cytotoxic/suppressor T-cells. On flow cytometry it stains 14-45% of human peripheral blood mononuclear cells. The antibody has been studied at the III. International Workshop on Human Leukocyte Differentiation Antigens. CD8 is a TCR coreceptor molecule binding MHC class I. The CD8 antigen is expressed on human suppressor/cytotoxic T-cells, human NK-cell subset cortical thymocyte subset and granulocytes.

**Isotype subclass:** Mouse IgG2a/kappa

**Form:** The purified antibody is conjugated with Peridinin Chlorophyll (PerCP) 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:** The UCHT-4 antibody is recommended for frozen tissue sections, histology and for flow cytometry.

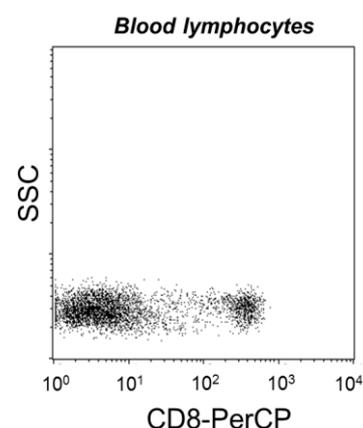
### References:

1. Beverley, P., Proceedings of the Royal Society of Edinburgh 81B: p221-232 (1982)
2. McMichael, A.J. et al. (eds.), Leucocyte typing III., Oxford University Press, Oxford, (1987)
3. Barclay, Brown et al., The Leukocyte Antigen FactsBook, 2nd edition, Harcourt Brace & Company, London, (1997)

**Background:** The **CD8** T cell coreceptor (monomer approx. 32-34 kDa) is expressed as alpha/beta heterodimer on majority of MHC I-restricted conventional T cells and thymocytes and as alpha/alpha homodimer on subsets of memory T cells, intraepithelial lymphocytes, NK cells and dendritic cells. Regulation of CD8 beta level on T cell surface seems to be an important mechanism to control their effector function. Assembly of CD8 alpha-beta but not alpha-alpha dimers is connected with formation or localization to the lipid rafts. Recruiting triggered TCR complexes to these membrane microdomains as well as affinity of TCR to MHC I is modulated by CD8, thereby affecting the functional diversity of the TCR signaling.

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

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## anti-human CD11b PerCP-conjugated

**PerCP** - conjugated monoclonal antibody HI11b to human CD11b

Cat-No: **21819115S**

100 µl

**Clone:** HI11b

**Specificity:** The antibody HI11b recognizes CD11b antigen (Mac-1), a 165 kDa type I transmembrane protein mainly expressed on monocytes, granulocytes and NK-cells. The CD11b mediates neutrophil and monocyte interactions with stimulated endothelium. HLDA VI; WS Code BP 310; HLDA VI; WS Code M 18

**Isotype subclass:** Mouse IgG1

**Form:** The purified antibody is conjugated with Peridin Chlorophyll (PerCP) 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  $\alpha$ M subunit) is a 165 kDa type I transmembrane glycoprotein that non-covalently associates with integrin  $\beta$ 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:** Leukocyte Typing VI. Kishimoto T. et al. (Eds.), Garland Publishing Inc. (1997).

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## anti-human CD14 PerCP-conjugated

**PerCP**-conjugated monoclonal antibody 18D11 to human CD14

Cat-No: **21620145S**

100 µl

**Clone:** 18D11

**Specificity:** The 18D11 antibody recognizes the CD14 antigen (LPS receptor) expressed strongly on the surface of monocytes, weakly on the surface of granulocytes, macrophages, dendritic cells and B-cells. On flow cytometry it stains > 90% of human peripheral blood monocytes. The antibody is LPS neutralising.

**Isotype subclass:** Mouse monoclonal IgG1

**Form:** The purified antibody is conjugated with Peridin Chlorophyll (PerCP) 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:** The 18D11 antibody is well suited for detection of CD14 in flow cytometry.

**References:**

D. Mason, D. et al. (eds), Leucocyte Typing 7, in press, Oxford University Press, Oxford, U.K., 2002

**Background:** CD14 is a 55 kDa GPI-anchored glycoprotein, constitutively expressed on the surface of mature monocytes, macrophages, and neutrophils, where serves as a multifunctional lipopolysaccharide receptor; it is also released to the serum both as a secreted and enzymatically cleaved GPI-anchored form. CD14 binds lipopolysaccharide molecule in a reaction catalyzed by lipopolysaccharide-binding protein (LBP), an acute phase serum protein. The soluble sCD14 is able to discriminate slight structural differences between lipopolysaccharides and is important for neutralization of serum allochthonous lipopolysaccharides by reconstituted lipoprotein particles. CD14 affects allergic, inflammatory and infectious processes.

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## anti-human CD20 PerCP-conjugated

PerCP-conjugated monoclonal antibody LT20 to human CD20

Cat-No: **21279205S**

100 µl

**Clone:** LT20

**Specificity:** The antibody LT20 reacts with CD20 (Bp35), a 33-37 kDa non glycosylated membrane receptor with four transmembrane domains, expressed on B lymphocytes (it is lost on plasma cells), follicular dendritic cells and at low levels on peripheral blood T lymphocytes.

**Isotype subclass:** Mouse IgG2a

**Form:** The purified antibody is conjugated with Peridinin Chlorophyll (PerCP) under optimum conditions. The reagent is adjusted for direct use. No reconstitution is necessary.

**Physical state:** Liquid

**Buffer/Additives/Preservative:** PBS containing 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:

\*Leucocyte Typing VII. Mason D. et al. (Eds.), Oxford University Press (2002).

\*Olyak MJ, Deans JP.: Cancer Res. 2003 Sep 1;63(17):5480-9.

\*Teeling JL, Mackus WJ, Wiegmann LJ, van den Brackel JH, Beers SA, French RR, van Meerten T, Ebeling S, Vink T, Slootstra JW, Parren PW, Glennie MJ, van de Winkel JG.: J Immunol. 2006 Jul 1;177(1):362-71.

**Background: CD20** is a cell surface 33-37 (depending on the degree of phosphorylation) kDa non-glycosylated surface phosphoprotein expressed on mature and most malignant B cells, but not stem cells or plasma cells (low number of the CD20 has been also detected on a subpopulation of T lymphocytes and it can be expressed on follicular dendritic cells). Its expression on B cells is synchronous with the expression of surface IgM. CD20 regulates transmembrane calcium conductance (probably functioning as a component of store-operated calcium channel), cell cycle progression and B-cell proliferation. It is associated with lipid rafts, but the intensity of this association depends on extracellular triggering, employing CD20 conformational change and/or BCR (B cell antigen receptor) aggregation. After the receptor ligation, BCR and CD20 colocalize and then rapidly dissociate before BCR endocytosis, whereas CD20 remains at the cell surface. CD20 serves as a useful target for antibody-mediated therapeutic depletion of B cells, as it is expressed at high levels on most B-cell malignancies, but does not become internalized or shed from the plasma membrane following mAb treatment.

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## anti-human CD42b PerCP-conjugated

PerCP-conjugated monoclonal antibody HIP1 to human CD42b

Cat-No: **21270425S**

100 µl

**Clone:** HIP1

**Specificity:** The antibody HIP1 reacts with CD42b (GPIb $\alpha$ ), a 135-145 kDa membrane glycoprotein expressed on platelets and megakaryocytes. CD42b and CD42c (GPIb $\beta$ ) are composed in a disulfide linked heterodimer (CD42b/c; 160 kDa); CD42b/c forms a noncovalent complex with CD42a and CD42d. HLDA IV; WS Code P 40

**Isotype subclass:** Mouse IgG1

**Form:** The purified antibody is conjugated with Peridin Chlorophyll (PerCP) 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:** CD42b (GPIb $\alpha$ ) composes together with GPIb $\beta$ , GPIX and GPV the GPIb-IX-V receptor complex critical in the process of platelet-rich thrombus formation by tethering the platelet to a thrombogenic surface. CD42b binds to von Willebrand factor (VWF) exposed at a site of vascular injury, as well as to thrombin, coagulation factors XI and XII, high molecular weight kininogen, TSP-1, integrin Mac-1 and P-selectin. The extracellular domain of CD42b by its interactions also contributes to metastasis.

### References:

1. Leucocyte Typing IV. Knapp W et al. (Eds.), Oxford University Press (1989)
2. Vettore S, et al. 2008. Haematologica. 93:1743.

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## anti-human CD45 PerCP

**PerCP** - conjugated monoclonal antibody HI30 to human CD45

Cat-No: **21810455S**

100 µl

**Clone:** HI30

**Specificity:** The antibody HI30 reacts with all alternative forms of human CD45 antigen (Leukocyte Common Antigen), a 180-220 kDa single chain type I transmembrane protein expressed at high level on all cells of hematopoietic origin, except erythrocytes and platelets and non-hematopoietic tissues and cells. CD45 is critically required for T and B cell antigen receptor-mediated activation.

**Isotype subclass:** Mouse IgG1

**Form:** The purified antibody is conjugated with Peridin Chlorophyll (PerCP) 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:

Horejsi V. et al., Folia Biol. (Praha) 34, 23 (1988).

Bazil V. et al., Immunogenetics 29, 202 (1989)

Leucocyte Typing III. McMichael A. J. et al (Eds.), Oxford University Press (1987).

Leucocyte Typing IV. Knapp W et al. (Eds.), Oxford University Press (1989).

**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.

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## anti-human CD45RA PerCP-conjugated

**PerCP** - conjugated monoclonal antibody HI100 to human CD45RA

Cat-No: **21819455S**

100 µl

**Clone:** HI100

**Specificity:** The antibody HI100 reacts with CD45RA, a 205-220 kDa single chain type I glycoprotein, variant of CD45 (CD45RA isoform). CD45RA is expressed on most of B lymphocytes, resting and native T lymphocytes, medullar thymocytes and monocytes.

**HLDA IV; WS Code NL 907**

**Isotype subclass:** Mouse IgG2a

**Form:** The purified antibody is conjugated with Peridin Chlorophyll (PerCP) 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:

Bazil V. et al., Immunogenetics 29, 202 (1989)

Leucocyte Typing IV. Knapp W et al. (Eds.), Oxford University Press (1989).

Leucocyte Typing V. Schlossman S. et al. (Eds.), Oxford University Press (1995).

**Background:** CD45RA is a high molecular weight isoform of a receptor-type protein tyrosine phosphatase, CD45 glycoprotein. CD45 is crucial in lymphocyte development and antigen signaling, serving as an important regulator of Src-family kinases, promotes cell survival by modulating integrin-mediated signal transduction pathway and is also involved in DNA fragmentation during apoptosis. CD45 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. CD45RA is expressed e.g. on naïve T cells and normal plasma cells.

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## anti-human HLA-DR PerCP-conjugated

**PerCP** - conjugated monoclonal antibody LT-DR to human HLA-DR

Cat-No: **21388995S**

100 µl

**Clone:** LT-DR

**Specificity:** The antibody LT-DR recognizes common epitope on human HLA-DR which is dependent on the association of alpha and beta chains. DR is the isotype of human MHC Class II molecules expressed on antigen-presenting cells (APC; dendritic cells, B lymphocytes, monocytes, macrophages).

**Isotype subclass:** Mouse IgG2a

**Form:** The purified antibody is conjugated with Peridin Chlorophyll (PerCP) 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:** The reagent is designed for Flow Cytometry analysis

**References:** Horejsi V and others: Tissue Antigens. 1986 Nov;28(5):288-97.

**Background:** HLA-DR is a transmembrane human major histocompatibility complex 2 (MHC II) family member and consists of a 34 kDa (alpha) subunit and one of several 28 kDa (beta) subunits. HLA-Dr is expressed primarily on B cells on which it presents antigenic peptides for recognition by the T cell receptor on CD4+T cells. This interaction is central to antigen specificity in the adaptive immune response. HLA-DR alleles, polymorphisms and aberrant expression are linked to a variety of diseases including autoimmunity and cancer.

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# mouse IgG1 Isotype control PerCP-conjugated

## PerCP-conjugated monoclonal antibody 1F8 to IgG1

Cat-No: 21815015S

100 µl

**Clone:** 1F8

**Specificity:** This reagent can be used as a mouse IgG1 isotype control.

**Isotype subclass:** Mouse IgG1

**Form:** The purified antibody is conjugated with Peridin Chlorophyll (PerCP) 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 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.

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## mouse IgG2a Isotype control PerCP-conjugated

**PerCP** - conjugated monoclonal antibody X5563 to IgG2a

Cat-No: **21815025S**

100 µl

**Clone:** X5563

**Specificity:** This reagent can be used as a mouse IgG2a isotype control.

**Isotype subclass:** Mouse IgG2a

**Form:** The purified antibody is conjugated with Peridin Chlorophyll (PerCP) 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

**Physical state:** Liquid

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

**Storage conditions:** Store at 4 °C. Do not freeze. 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

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[www.immunotools.com](http://www.immunotools.com)

## mouse IgG2b Isotype control PerCP-conjugated

PerCP-monoclonal antibody TG1.7 to IgG2b

Cat-No: **21815035S**

100 µl

**Clone:** TG1.7

**Specificity:** This reagent can be used as a mouse IgG2b isotype control.

**Isotype subclass:** Mouse IgG2b

**Form:** The purified antibody is conjugated with Peridinin Chlorophyll (PerCP) 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 specificity of staining by monoclonal antibodies to target antigens should be verified by establishing the amount of non-specific antibody binding.

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## anti-human CD45 PE/Dy647-conjugated

PE/Dy647 -conjugated monoclonal antibody MEM-28 to human CD45

Cat-No: **21270457S**

100 µl

**Clone:** MEM-28 (mouse)

**Specificity:** The antibody MEM-28 reacts with all alternative forms of human CD45 antigen (Leukocyte Common Antigen), a 180-220 kDa single chain type I transmembrane protein expressed at high level on all cells of hematopoietic origin, except erythrocytes and platelets.

**HLDA III; WS Code NL 833a**

**Isotype subclass:** Mouse IgG1

**Form:** The purified antibody is conjugated with tandem dye PE-Dyomics 747 (PE-DY747) under optimum conditions. The conjugate is purified by size-exclusion chromatography and adjusted for direct use. No reconstitution is necessary.

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

**Physical state:** Liquid

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

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

**Application:** The reagent is designed for flow cytometry analysis of human blood cells.

### References:

Leucocyte Typing III. McMichael A. J. et al (Eds.), Oxford University Press (1987)

Bazil V. et al., Immunogenetics 29, 202 (1989)

Horejsi V. et al., Folia Biol. (Praha) 34, 23 (1988)

Leucocyte Typing IV. Knapp et al (Eds.), Oxford University Press (1989)

**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.

**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.

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