

**Analyte Specific Reagent.**

**Analytical and performance characteristics are not established.**

**SPECIFICITY**

The CD19 antigen (also called B4) is a type I membrane glycoprotein with a molecular weight of 95 kDa (1, 2).

Its extracellular domain comprises 280 amino acids organized as two C2-type Ig-like domains separated by a smaller potentially disulfide-linked domain. The extensive cytoplasmic domain of CD19 contains nine conserved tyrosine residues, and several of these are located within potential src-homology region 2 (SH2)-binding sites.

CD19 is a signal transduction molecule that regulates lymphocyte development, activation, and differentiation (3, 4).

The molecule is expressed on all normal B lymphocytes including pro-B lymphocytes, but it is lost in maturation to plasma cells (3, 5).

It is also found on the surface of follicular dendritic cells, on the early cells of myelomonocytic lineage and on most stabilized B cell lines. It is not present on normal T lymphocytes, NK cells, monocytes, and granulocytes.

CD19 can be associated within the membrane to form hetero-oligomeric structures with other surface molecules including CD21, the complement receptor type 2 (CR2), and CD81 (TAPA-1) (6). The extracellular and transmembrane domains of CD19 are required for the interaction of this molecule with CD21 and CD81. Co-ligation of the CD19-CD21-CD81 complex with the surface IgM-B-cell antigen receptor (BCR) leads to the phosphorylation of CD19 by Syk (6, 7), followed by the recruitment, through tyrosine phosphorylated CD19, of positive signal transduction effectors such as phosphatidylinositol 3 kinase (PI3 kinase), Lyn, and Fyn (8, 9).

In vitro studies show that the CD19 antibodies have an inhibitory effect on the activation and proliferation of B lymphocytes. They also inhibit the B cell response after co-stimulation by anti-immunoglobulin and interleukin 4.

The J3-119 monoclonal antibody (mAb) reacts with B lymphocytes, not with T lymphocytes, monocytes or granulocytes. It stains mantle-zone and germinal-center lymphoid cells, as well as follicular dendritic cells. Plasma cells are negative.

MAb J3-119 has been assigned to the CD19 cluster of differentiation during the 4th HLDA Workshop on Human Leucocyte Differentiation Antigens held in Vienna, Austria in 1989 (1, 2).

**REAGENT**

IOTest CD19-Pacific Blue  
Conjugated antibody  
PN A86355 - 50 tests - Liquid - 10 µL/test\*

**Clone** J3-119  
**Isotype** IgG1, Mouse  
**Immunogen** SK LY 18 Lymphoma  
**Hybridoma** NS1 x spleen B cells  
**Source** Ascites fluid  
**Purification** Affinity chromatography  
**Conjugation** Pacific Blue (Pacific Blue)  
**Molar Ratio** Pacific Blue / Ig :5.2 - 6.6  
**Fluorescence** Excites at 405 nm  
Emits at 455 nm

**REAGENT CONTENTS**

This antibody is provided in phosphate-buffered saline, containing 0.1% sodium azide and 2 mg/mL bovine serum albumin.

**STATEMENTS OF WARNING**

1. This reagent contains 0.1% sodium azide. Sodium azide under acid conditions yields hydrazoic acid, an extremely toxic compound. Azide compounds should be flushed with running water while being discarded. These precautions are recommended to avoid deposits in metal piping in which explosive conditions can develop. If skin or eye contact occurs, wash excessively with water.
2. Specimens, samples and all material coming in contact with them should be considered potentially infectious and disposed of with proper precautions.
3. Never pipet by mouth and avoid contact of samples with skin and mucous membranes.
4. Do not use antibody beyond the expiration date on the label.
5. Do not expose reagents to strong light during storage or incubation.
6. Avoid microbial contamination of reagents or incorrect results might occur.
7. Use good laboratory practices when handling this reagent.

**STORAGE CONDITIONS AND STABILITY**

This reagent is stable up to the expiration date when stored at 2 – 8°C. Do not freeze.

**REAGENT PREPARATION**

No reconstitution is necessary. This monoclonal antibody may be used directly from the vial. Bring reagent to 18 – 25°C prior to use.

**SELECTED RESEARCH REFERENCES**

1. "CD Guide " Compiled by the organizing committee, 1989, Leucocyte Typing IV, White Cell Differentiation Antigens. W. Knapp, et al., Eds., Oxford University Press, 1078.

2. "Listing of all Fourth Workshop antibodies", 1989, Leucocyte Typing IV, White Cell Differentiation Antigens. W. Knapp, et al., Eds., Oxford University Press, 1094-1110.
3. Doody, G.M., Dempsey, P.W., Fearon, D.T., "Activation of B lymphocytes : integrating signals from CD19, CD22 and FcγRIIb1", 1996, Cur. Opin. Immunol., 8, 378-382.
4. Pesando, J. M., Bouchard, L. S., McMaster, B. E., "CD19 is functionally and physically associated with surface immunoglobulin", 1989, J. Exp. Med., 170, 2159-2164.
5. Loken, M.R., Shah, V.O., Dattilio, K.L., Civin, C.I., "Flow cytometric analysis of human bone marrow. II. Normal B lymphocyte development", 1987, Blood, 70, 1316-1324.
6. Bradbury, L.E., Kansas, G.S., Levy, S., Evans, R.L., Tedder, T.F., "The CD19/CD21 signal transducing complex of human B lymphocytes includes the target of antiproliferative antibody-1 and Leu-13 molecules", 1992, J. Immunol., 149, 2841-2850.
7. Carter, R.H., Doody, G.M., Bolen, J.B., Fearon, D.T., "Membrane IgM-induced tyrosine phosphorylation of CD19 requires a CD19 domain that mediates association with components of the B cell antigen receptor complex", 1997, J. Immunol., 158, 3062-3069.
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9. Kurosaki, T., "Molecular mechanisms in B cell antigen receptor signaling", 1997, Curr. Opin. Immunol., 9, 309-318.

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(\*): 10 µL is the quantity of product sufficient to stain 5 x 10<sup>5</sup> cells in a standard immunofluorescence assay

