

PN IM3646 CD179a-PC5 (4G7)

**100 tests
10 µL / test**



IO Test®
Conjugated Antibodies

For Research Use Only. Not For Use In Diagnostic Procedures.

SPECIFICITY

The CD179a molecule is a 126 amino acid long polypeptide with a molecular weight of 16 – 18 kDa. Its structure is similar to that of an immunoglobulin V-like domain, but lacks the last β -strand ($\beta 7$) found typically in a V domain. Instead, there is a carboxyl terminal that has no sequence homology with that of any other known protein.

CD179a non-covalently associates with CD179b (also known as $\lambda 5$ or λ -like, and carrying an Ig C domain-like structure) to form an immunoglobulin (Ig) light chain-like structure, known as the surrogate light chain. In this complex, the complete V domain of CD179a may be complemented by the extra $\beta 7$ strand of CD179b. The CD179a/CD179b surrogate light chain is disulfide-linked to the membrane-bound Ig μ (mu) heavy chain in association with the transducer CD79a/CD79b heterodimer. The CD179a/CD179b/CD79a/CD79b complex forms then a B cell receptor-like structure known as preBCR.

B cell development from pluripotent stem cells proceeds through pro-B, pre-B and B stages, characterized by sequential Ig gene rearrangements and expression and by a well-defined set of surface molecules.

B-cell differentiation involves strictly coordinated processes, with at least two checkpoints, one at the transition from large to small preB cells, dependent on preBCR, and the second at the immature B-cell stage dependent on BCR. PreBCR may function as a checkpoint in early B cell development and may monitor the production of the Ig μ heavy chain through a functional rearrangement of the Ig heavy chain gene. Furthermore, preBCR may serve to check Ig μ heavy chain association with the Ig light chain.

CD179a is not detected in normal mature circulating B lymphocytes.

The 4G7 monoclonal antibody (mAb) recognizes the VpreB protein regardless of whether it is or it is not associated with the μ chain (1). The 4G7 mAb detects then both surface expression of pseudo L-positive μ -positive preB-cell and pseudo L-positive μ -negative proB-cell complexes (1).

The 4G7 mAb was assigned to CD179a at the 7th International Workshop on Human Leucocyte Differentiation Antigens (H.L.D.A.), held in Harrogate, England, in 2000 (2).

REAGENT

Clone 4G7
Isotype IgG1, mouse
Immunogen Recombinant V-preB
Hybridoma Balb/c x X63
Source Ascites fluid
Purification Ion exchange or affinity chromatography
Conjugation The Ig is conjugated to a tandem dye constituted of R-phycoerythrin covalently linked to cyanin 5.1 (PC5) at 0.5 – 1.5 moles of PC5 per mole of Ig.
Excitation wavelength: 488 nm
Maximum emission wavelength: 670 nm
Main emission color: Deep-red
Buffer 2 mg/mL bovine serum albumin in phosphate-buffered saline containing 0.1% sodium azide.

APPLICATION

Characterization of CD179a membrane expression on the external side of cells from the B lineage during hematopoietic differentiation by flow cytometry.

Identification of early stage (i.e. proB and preB cells stage) of physiological and physiopathological (i.e. Acute Lymphoid Leukemia, ALL) B lymphocytes development (3).

STATEMENT OF WARNINGS

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 handled as if capable of transmitting infection and disposed of with proper precautions.
3. Never pipet with 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.

STORAGE CONDITIONS AND STABILITY

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

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.

PROCEDURE

This reagent is designed for Flow Cytometry.

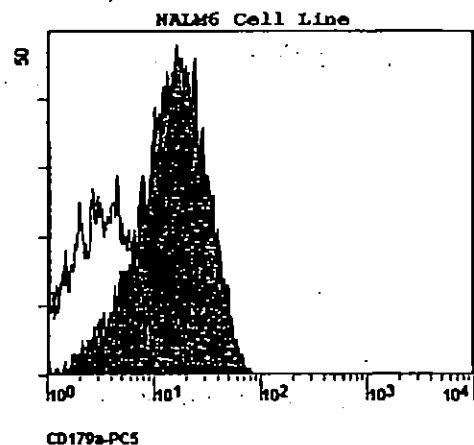
Assay volume: 10 µL per 5×10^5 cells in one test, or per 100 µL whole blood.

A wash is required to yield optimal results.

EXAMPLE DATA

The histogram below is a monoparametric representation (Count versus Fluorescence Intensity) of the human pre-B NALM6 cell line. Staining is with CD179a-PC5 monoclonal antibody (PN IM3646). Isotypic control (PN IM2663) labeling is shown underneath in light.

Acquisition is with a COULTER® EPICS® XL™ flow cytometer. Analysis is with the Expo™ 32 software.



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SELECTED RESEARCH REFERENCES

1. Lemmers, B., Gauthier, L., Guelpa-Fontupt, V., Fougereau, M., Schiff, C., "The human (psiL+mu) proB complex: Cell surface expression and biochemical structure of a putative transducing receptor"; 1999; Blood, 93: 4336-4346.
2. Karasuyama, H., "VpreB (CD179a)", 2000, PROW and IWLDA on the Web, 1, 59-63.
3. Schiff, C., Milili, M., Bossy, D., Tabilio, A., Falzetti, F., Gabert, J., Mannoni, P., Fougereau, M., "lambda-like and V pre-B genes expression: An early B-lineage marker of human leukemias", 1991, Blood, 78, 1516-1525.

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