

PN IM2651**CD38 - PC5****(LS198)****100 tests****10 µL/test**
IOTest[®]
 Conjugated Antibodies

For Research Use Only. Not for use in diagnostic procedures.

SPECIFICITY

CD38, originally named T10 antigen, is a 45 kDa single-chain type II glycoprotein. The amino acid sequence reveals an integral membrane protein with short N-terminal cytoplasmic tail, a long extracellular C-terminal domain and a single membrane-spanning region (1,2).

CD38 antigen is expressed on a variety of hematopoietic cells, and its distribution depends on the state of the cell differentiation and the cell activation. Approximately 90% of circulating lymphocytes in newborn are CD38+, and 50-60% lymphocytes remain positive for the first 6-10 years of life (1). In adults, CD38 molecule is expressed on earlier stage of B lymphocytes ontogeny, lost during maturation and re-expressed upon terminal differentiation to plasma cells. This molecule is also strongly expressed on thymocytes, but is found at low density on resting T lymphocytes (1). Activation of T lymphocytes results in renewed high density expression (1,2). In bone marrow, CD38 is found on 99% of CD34+ cells, the remaining CD34+ cells being the most immature of the progenitor cells (3). CD38 antigen is expressed on the majority (80%) of resting natural killer cells and monocytes (4), and is also found on platelets (5), and red blood cells (6).

In addition to the membrane-anchored molecule (mCD38, Mr 45 kDa), a soluble form of CD38 also exists (sCD38, Mr 39 kDa). The soluble form, probably resulting of cell activation or interaction with cytokines, may compete for the counter-receptor with the cell-bound CD38 and play a role in regulating its activity (1,4). CD38 seems to be also internalized in response to appropriate stimuli (1).

CD38 was shown to act as a bifunctional ectoenzyme (with ADP-ribosyl cyclase and hydrolase activities) and as a modulator of signal transduction pathways (1,2,4,5,6). CD38 antigen is also involved in the regulation of cell adhesion (1,4).

LS198 antibody was evaluated during the Vth international workshop on Human Leukocyte Differentiation Antigens in Boston in 1993 (7).

REAGENT

Clone LS198
Isotype IgG1
Immunogen Human T cell line HuT 78
Hybridoma SP2/O x Balb/c spleen cells
Source Ascites fluid
Purification Ion exchange or affinity chromatography
Conjugation PC5. The IgG is conjugated to a tandem dye constituted of R-phycoerythrin covalently linked to cyanin 5.1 at 0.7-1 mole of PC5 per mole of IgG
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

Flow cytometry
 Identification of CD38 expressing cells
 Studies of activation and / or regulation of CD38 expressing cells
 Studies of adhesion on CD38 expressing cells
 Studies of the state of maturation on progenitors cells

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 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.

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 20 - 25 °C prior to use.

PROCEDURE

This reagent is designed for Flow Cytometry.

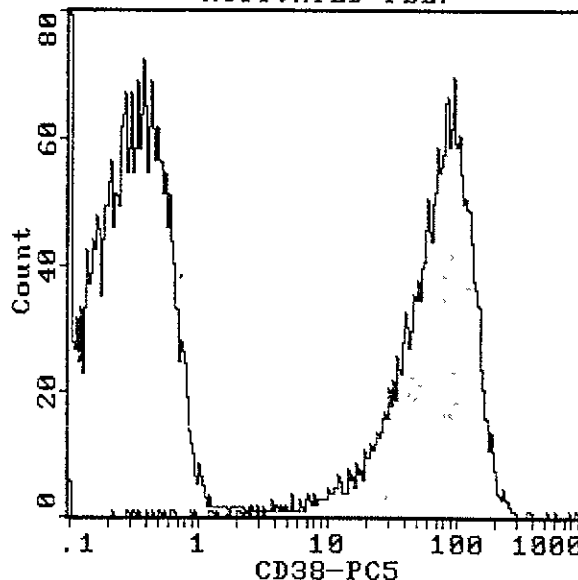
Assay volume: 10 µL/5 x 10⁵ cells / test or 100 µL whole blood.

A wash is required to yield optimal results.

EXAMPLE DATA

The graphs below are monoparametric representations (Count versus Fluorescence Intensity) of PHA-activated normal peripheral blood lymphocytes. Staining is with CD38-PC5 monoclonal antibody (PN IM2651) on the activated PBL. The isotypic control (PN IM2663) labeling is shown in light.

Acquisition is with a COULTER R EPICS R XL TM flow cytometer. Analysis is with the XL SYSTEM II TM software.

ACTIVATED PBL.


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PARTNERS IN CELL ANALYSIS

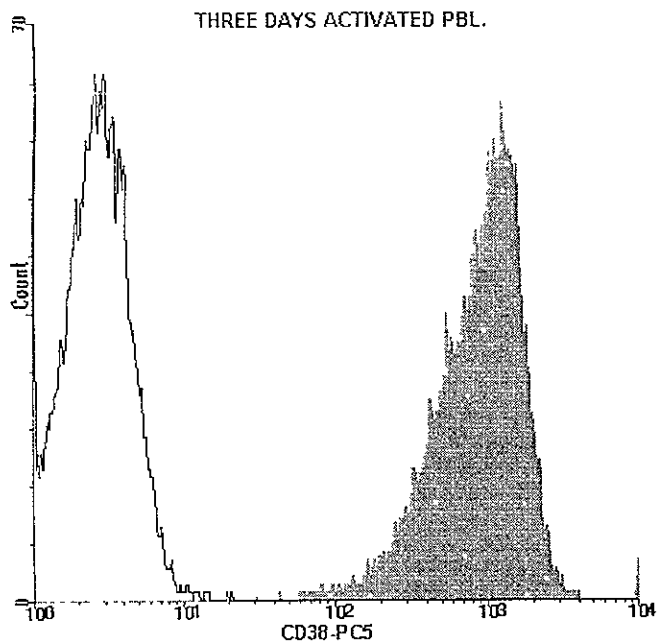
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PN IM2651 CD38 - PC5 (LS198)

100 tests
10 µL/test

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Acquisition is with a Becton Dickinson FACScan TM flow cytometer
Analysis is with the LYSYS II TM software



SELECTED RESEARCH REFERENCES

- 1-[432] Mehta, K , Shahid, U , Malavasi, F , "Human CD38, a cell-surface protein with multiple functions", 1996, The FASEP Journal, 10, 1408-1417
- 2-[437] Malavasi, F , Funaro, Roggero, Horenstein, A., Calosso, L , Mehta, K , "Human CD38 a glycoprotein in search of a function", 1994, Immunol Today, 3, 15, 95-97
- 3-[436] Terstappen, L W M.M , Huang, S , Safford, M , Lansdorp, P M , Loken, M R , "Sequential generation of hematopoietic colonies derived from single nonlineage-committed CD34+CD38-progenitor cells", 1991, Blood, 6, 77, 1218-1227
- 4-[433] Funaro, A , Horenstein, A L , Malavasi, F , "Human CD38 a versatile leukocyte molecule with emerging clinical perspectives", 1995, Fund Clin Immunol, 3, 3, 101-113
- 5-[434] Ramaschi, G , Torti, M , Festetics, E T , Sinigaglia, F , Malavasi, F , Balduini, C , "Expression of cyclic ADP-Ribose-synthetizing CD38 molecule on human platelet membrane", 1996, Blood, 6, 87, 2308-2313
- 6-[438] Zocchi, E , Franco, L , Guida, L., Benatti, U , Bargellesi, A , Malavasi, F , Lee, H C , DeFlora, A , " A single protein immunologically identified as CD38 display NAD+ Glycohydrolase, ADP-Ribosyl Cyclase and cyclic ADP-Ribose Hydrolase activities at the outer surface erythrocytes", 1993, Bioch Bioph Res Commun, 3, 196, 1459-1465
- 7-[439] Boumsell, L , "T-cell antigens section report", 1995, Leucocyte Typing V, White Cell Differentiation Antigens, Schlossman, S F , et al , Eds , Oxford Univ Press, 241-279

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