MONOCLONAL ANTIBODY CD38

Cat. No.	Form	Quantity	Presentation
~~2275~~	~~PE-Cy5~~	~~100 tests~~	~~Liquid 2 mL~~
2371	PE	100 tests	Liquid 2 mL
2551	Purified	0.2 mg	Freeze-dried

Clone LS198

Isotype IgG1, κ (mouse)

Immunogen Human T cell line HuT 78

Hybridoma Myeloma SP2/O x Balb/c spleen cells

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, M_r 45 kDa), a soluble form of CD38 also exists (sCD38, M_r 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, 4-6). 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).

Applications 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.

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MA003

IMMUNOTECH
A COULTER COMPANY
BP.177 - 13276 Marseille Cedex 9 - France
Tel. (33) 4 91 17 27 00 - Fax (33) 4 91 41 43 58

Buffer

Liquid forms: 2 mg/mL bovine serum albumin in phosphate-buffered saline containing 0.1% sodium azide.
Freeze-dried form: 1 mg/mL bovine serum albumin in phosphate-buffered saline.

Conjugation

PE: R-phycoerythrin (PE) is conjugated at 0.7-1 mole of PE per mole of IgG.
Excitation wavelength: 488 nm
Maximum emission wavelength: 575 nm
Main emission color: Orange-red

PE-Cy5: The IgG is conjugated to a tandem dye constituted of R-phycoerythrin covalently linked to cyanin 5 (1 mole of PE-Cy5 per mole of IgG).
Excitation wavelength: 488 nm
Maximum emission wavelength: 670 nm
Main emission color: Deep-red

Limitation: PE-Cy5 conjugates are recommended for use only on flow cytometers equipped with a 675 nm band pass filter in front of the fluorescence detector.

Reconstitution and Storage

The conjugated forms should not be frozen and should be stored in the dark at 2-8°C until the expiration date stated on the vial label.

The freeze-dried form may be stored at 2-8°C until the expiration date stated on the vial label. Reconstitute with 1 mL of distilled water. No preservative has been added. The reconstituted form may be stored at -20°C until the expiration date stated on the vial label. Aliquotting is suggested to avoid multiple freeze-thaw cycles. The addition of sodium azide at 0.1% (w/v) is recommended for storage of the reconstituted form for up to one month at 2-8°C.

Recommended Procedures

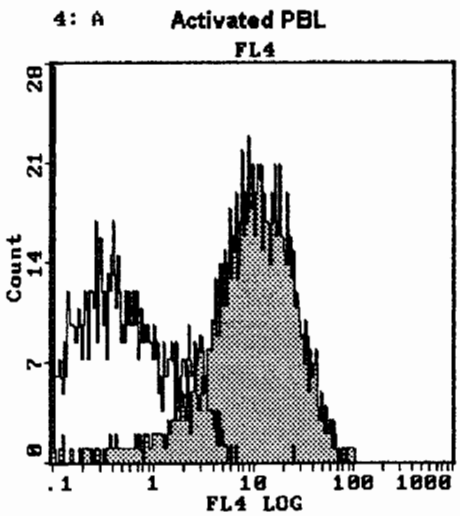
Flow cytometry

Liquid form: 20 µL / 5 x 10^5 cells / test or 100 µL of whole blood.

Freeze-dried form: 2µg / 5 x 10^5 cells / test or 100 µL of whole blood.

Example data

The histogram below illustrates the direct labeling of activated human peripheral blood lymphocytes (PBL).



Cells are labeled with CD38 PE-Cy5 clone LS198 (Cat. No. 2275). The white profile represents the negative control performed with isotypic control IgG1 PE-Cy5 (Cat. No. 1473).