

# Monoclonal Antibody CD38

PN IM0366 – Purified – Freeze-dried – 0.2 mg – Clone T16

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

## SPECIFICITY

CD38, originally named T10 antigen, is a 45 kDa single-chain 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 activation. Approximately 90% of circulating lymphocytes in newborn are CD38<sup>+</sup>, and 50 – 60% of 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<sup>+</sup> cells, the remaining CD34<sup>+</sup> 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, a soluble form of CD38 also exists (sCD38, Mr 39 kDa). The soluble form may compete for the counter-receptor with the cell-bound CD38 and play a role in modulating its activity (1, 4). CD38 seems also to be 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).

The T16 monoclonal antibody was assigned to the CD38 cluster of differentiation at the 3<sup>rd</sup> international workshop on Human Leukocyte Differentiation Antigens in Oxford, UK, in 1986 (7).

## REAGENT

Monoclonal Antibody CD38  
PN IM0366 – Purified – Freeze-dried

<b>Clone</b>	T16
<b>Isotype</b>	IgG1
<b>Immunogen</b>	Human HLA-A2 cytotoxic Tcell clone
<b>Hybridoma Species</b>	SP2/0 x Balb/c Mouse
<b>Source</b>	ascites fluid
<b>Purification</b>	Protein A affinity chromatography

## REAGENT CONTENTS

1 mg/ml bovine serum albumin in phosphate buffered saline.

## STATEMENT OF WARNINGS

1. 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.
2. Never pipet by mouth and avoid contact of samples with skin and mucous membranes.
3. Do not use reagent beyond the expiration date on the vial label.
4. Avoid microbial contamination of reagent or erroneous results may occur.
5. Use good laboratory practices when handling this reagent.

## STORAGE CONDITIONS AND STABILITY

This reagent is stable up to the expiration date on the vial label when stored at 2 – 8°C. The reconstituted form may be stored at – 20°C until the expiration date. Aliquoting 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. Minimize exposure to light and warmth.

## REAGENT PREPARATION

Reconstitute with 1 mL of distilled water. No preservative has been added.

## APPLICATIONS

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.

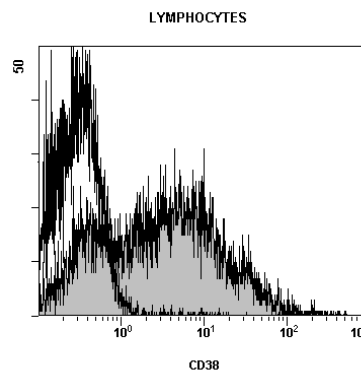
Flow cytometry and immunohistochemistry

For each application, it is recommended to establish the right range of antibody dilutions to be used for the experiment.

## EXAMPLE DATA

The histogram below is a monoparametric representation (Count *versus* Fluorescence Intensity) of a lysed normal whole blood sample, gated on lymphocytes. Indirect staining is with purified CD38 (PN IM0366) and FITC-conjugated F(ab')<sub>2</sub> fragment goat anti-mouse IgG (PN IM0819). The isotypic

control labeling with purified mouse IgG1 (PN IM0571) is superimposed (unshaded area).



Acquisition is with a COULTER® EPICS® XL™ flow cytometer. Analysis is with the Cytomics CXP analysis software.

## SELECTED RESEARCH REFERENCES

1. Mehta, K., Shahid, U., Malavasi, F., "Human CD38, a cell-surface protein with multiple functions", 1996, FASEB J., 10, 1408-1417.
2. 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. 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<sup>+</sup>CD38<sup>-</sup> progenitor cells", 1991, Blood, 6, 77, 1218-1227.
4. Funaro, A., Horenstein, A.L., Malavasi, F., "Human CD38: a versatile leukocyte molecule with emerging clinical prospectives", 1995, Fund. Clin. Immunol., 3, 3, 101-113.
5. 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. 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<sup>+</sup> Glycohydrolase, ADP<sup>+</sup> Ribosyl Cyclase and cyclic ADP-Ribose Hydrolase activities at the outer surface

# Monoclonal Antibody CD38

---

## PN IM0366 – Purified – Freeze-dried – 0.2 mg – Clone T16

erythrocytes", 1993, Biochem. Biophys. Res. Com., 3, 196, 1459-1465.

- Ling, N.R., MacLennan, I.C.M., Mason, D.Y., "B-cell and plasma cell antigens: new and previously defined clusters", 1987, Leucocyte Typing III, White Cell Differentiation Antigens, McMichael A.J., et al., Eds., Oxford University Press, 302-335.

### PRODUCT AVAILABILITY

Monoclonal Antibody CD38  
PN IM0366 – Purified – Freeze-dried

For additional information in the USA, call 800-526-7694.

Outside the USA, contact your local Beckman Coulter representative.  
[www.beckmancoulter.com](http://www.beckmancoulter.com)

### TRADEMARKS

Beckman Coulter, the Beckman Coulter logo, COULTER, EPICS and XL are trademarks of Beckman Coulter, Inc.

Manufactured by:  
Immunotech, a Beckman Coulter Company

130, avenue de Lattre de Tassigny, B.P. 177  
13276 Marseille Cedex 9, France

©2005 Beckman Coulter, Inc.  
All Rights Reserved

