

IOTest® CD109-PE

PN A08933 – 100 tests – 20 µL / test – Clone 8A3

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

SPECIFICITY

The CD109 antigen is a monomeric glycosyl-phosphatidylinositol (GPI)-linked glycoprotein of 170 kDa under both reducing and non-reducing conditions. It contains several N-linked endoglycosidase H-sensitive hybrid-type glycans but no O-linked glycan (1). It has been reported as a novel member of the α2 macroglobulin (α2M) / C3, C4, C5 family of thioester-containing proteins (2).

The CD109 antigen is found on vascular endothelial cells, some epithelial cells, activated, but not resting, T-cells, activated, but not resting, platelets, leukemic megakaryoblasts and a subset of bone marrow CD34⁺ cells (1, 3). This antigen is not expressed on fresh peripheral blood lymphocytes (PBL) (4, 1). Weak binding is detectable in peripheral blood monocytes. Human umbilical vein endothelial cells (HUVEC) and some endothelial cell lines like EA.hy 926 have a basal level of CD109 antigen expression (5). Poorly differentiated (CD34⁺, TdT⁺, CD7⁺) T-acute leukemias and rare cases of chronic myeloid leukemia in megakaryoblast crisis expressed the CD109 antigen. Furthermore, megakaryoblastoid cell lines (M07e, MOLM-1) are CD109⁺ (4).

The CD109 antigen, that is strongly expressed on the KG1a cell line with 20,000 binding sites per cell (6), may represent a very early marker for hematopoietic cells committed to the megakaryocyte lineage as demonstrated by studies on fetal bone marrow where the CD34⁺ CD109⁺ subset identifies almost all myelo-erythroid and megakaryocytic progenitors (7). By contrast, the adult bone marrow CD34⁺ CD109⁺ subset identifies the most primitive hematopoietic stem cells capable of long-term culture and lymphoid progenitors of the B-cell lineage (7, 3).

In human platelets, the tyrosine 703 serine polymorphism that defines the Gov^h allo-antigen is localized on the CD109 molecule (8, 9).

Structural and serologic characteristics of the CD109 antigen indicate that it is different from other leukocyte activation antigens including transferrin receptors, interleukin-2 receptors, HLA class II molecules and from platelet activation-specific molecules like the activated form of GPIIb/IIIa and GMP140 (1).

The 8A3 monoclonal antibody was first assigned to the CDw109 cluster of differentiation at the 5th International Workshop on Human Leukocyte Differentiation Antigens (HLDA) in Boston, USA (6) and reassigned to CD109 at the 6th International HLDA Workshop in Kobe, Japan (1996) (WS Code: E010, section E) (4).

REAGENT

IOTest CD109-PE Conjugated Antibody
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Clone 8A3
Isotype IgG2a, κ, mouse
Immunogen KG1-a cell line
Hybridoma SP2/0 x Bālb/c
Source Ascites fluid
Purification Protein A affinity chromatography
Conjugation R-phycoerythrin (PE) is conjugated at 0.5 – 1.5 moles of PE per mole of Ig.

Excitation wavelength: 488 nm
Maximum emission wavelength: 575 nm
Main emission color: Orange-red
Buffer 2 mg/mL bovine serum albumin in phosphate-buffered saline containing 0.1% sodium azide.

APPLICATION

This conjugated monoclonal antibody is designed for flow cytometry studies of CD109 expressing cells (e.g. activated T cells, endothelial cells, CD34⁺ HPC and megakaryocytic 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 extensively 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

This 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: 20 µL per 5 x 10⁵ 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 a fresh HUVEC cell line. Staining is with IOTest CD109-PE Conjugated Antibody (PN A08933). The isotypic control labeling (IgG2a-PE; PN JMD671) is shown in light.

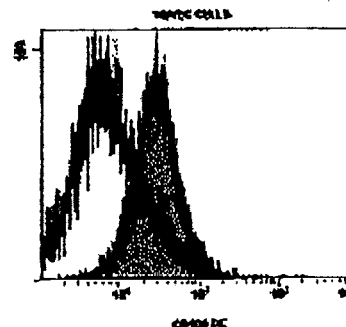


Figure 1: Acquisition is with a COULTER® EPICS® XL™ flow cytometer. Analysis is with the Cytomics™ RXP™ software.

SELECTED RESEARCH REFERENCES

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3. [2901] Rappold, L., Ziegler, B.L., Köhler, L., Marchetto, S., Rosnet, O., Birnbaum, D., Simmons, P.J., Zannettino, A.C.W., Hill, B., Neu, S., Knapp, W., Aitala, R., Allalo, K., Ulrich, A., Kanz, L., Bühring, H.J., "Functional and phenotypic characterization of cord blood and bone marrow subsets expressing FLT3 (CD135) receptor tyrosine kinase", 1997, *Blood*, 1, 90, 111-125.
4. [5868] Sutherland, D., R., Yeo, E., L., "EC4 CD109 Workshop panel report", *Leucocyte Typing VI*, 714-716.

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9. [5874] Schuh, A., C., Watkins, N., A., Nguyen, Q., Harmer, N., J., Lin, M., Prosper, J., Y., Campbell, K., Sutherland, D., R., Metcalfe, P., Horsfall, W., Ouwehand, W., H., "A tyrosine 703serine polymorphism of CD109 defines the Gov platelet alloantigens", 2002, *Blood*, 5, 99, 1692-1698.

PRODUCT AVAILABILITY
IOTest CD109-PE Conjugated Antibody
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PE is licensed under patent 4,520,110

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