Monoclonal Antibodies Detecting Human Antigens

CD13 (L138)

Form	Catalog number
Pure	347830
PE	347837
PE-Cy7	338425
APC-R700	657698

Product availability varies by region. Contact BD Biosciences Customer Support or your local sales representative for information.

RESEARCH APPLICATIONS

Research applications include:

- Immunophenotyping of leukemias[1-9]
- Investigation of myeloid cell function[8,10-12]
- Delineation of cellular differentiation and hematopoietic maturation[10-12]
- Enumeration of myeloid cell subsets[5,6,13]

DESCRIPTION

Specificity

The CD13 antibody specifically binds to a glycosylated 150-kilodalton (kDa) type II integral membrane zinc-metalloprotease. The CD13 antigen is also known as aminopeptidase N, APN, ANPEP, and gp150.[14]

Antigen distribution

The CD13 antigen is expressed on granulocytes, monocytes, mast cells, and granulocyte/macrophage progenitor cells (CFU-GM), but not on lymphocytes, platelets, or erythrocytes.[15,16] It is expressed on most acute myeloid leukemia (AML) cells and some chronic myeloid leukemia (CML) cells. The CD13 antigen is also expressed on epithelial cells of the kidney, small intestine, and respiratory tract, as well as in synaptic membranes in the central nervous system (CNS).

The CD13 antigen is involved in the metabolism of many regulatory peptides.[14] Clustering of the CD13 antigen by various forms of ligation promotes the adhesion between monocytes and endothelial cells.[17] The CD13 antigen is the receptor for human coronavirus 229E, the causative agent for some cases of upper respiratory infection.[18]

Clone

The CD13 antibody, clone L138 (also known as Leu-M7),[19,20] is derived from the hybridization of Sp2/0 mouse myeloma cells with spleen cells isolated from BALB/c × C57BL/6 hybrid mice immunized with the KG-1a cell line.

Composition

The CD13 antibody is composed of mouse IgG_1 heavy chains and kappa light chains.

Product configuration

The following are supplied in phosphate buffered saline (PBS) containing a stabilizer and a preservative.

Form	Number of tests	Volume per test (µL)[a]	Amount provided (µg)	Total volume (mL)	Concentration (µg/mL)	Stabilizer	Preservative
Pure	100	20	50	2.0	25	Gelatin	0.1% Sodium azide
PE	100	20	50	2.0	25	Gelatin	0.1% Sodium azide

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

Becton, Dickinson and Company
BD Biosciences
2350 Qume Drive
San Jose, CA 95131 USA

bdbiosciences.com
ResearchApplications@bd.com

4/2015 23-1909-05

Form	Number of tests	Volume per test (µL)[a]	Amount provided (µg)	Total volume (mL)	Concentration (µg/mL)	Stabilizer	Preservative
PE-Cy™7	100	5	12.5	0.5	25	Gelatin	0.1% Sodium azide
APC-R700[b]	100	5	12.5	0.5	25	BSA	ProClin® 300

a. Volume required to stain 10^6 cells.
b. BD Horizon™ APC-R700

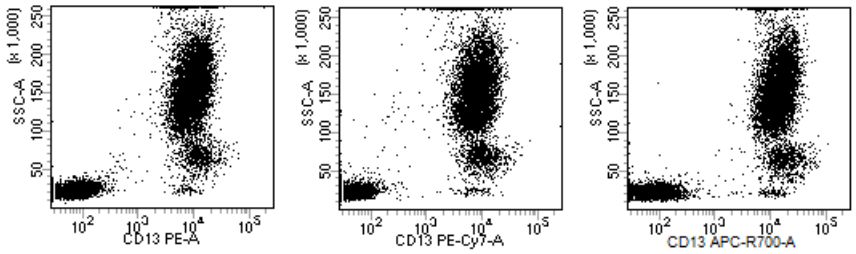
CAUTION Some PE-Cy7 and APC-R700 conjugates show changes in their emission spectra with prolonged exposure to paraformaldehyde or light. For overnight storage of stained cells, wash and resuspend in buffer without paraformaldehyde after 1 hour of fixation.

PROCEDURE

Visit our website (bdbiosciences.com) or contact your local BD representative for the lyse/wash protocol for direct immunofluorescence.

REPRESENTATIVE DATA

Flow cytometric analysis was performed on normal whole blood stained with the indicated conjugated antibody and gated on lymphocytes (negative) and monocytes (positive). Laser excitation was at 488 nm or 640 nm. The APC-R700 conjugate is read off the red laser (640 nm) using a 685 longpass mirror with a 712/21 bandpass filter. Representative data analyzed with a BD FACS™ brand flow cytometer is shown in the following plots.



HANDLING AND STORAGE

Store vials at 2°C–8°C. Conjugated forms should not be frozen. Protect from exposure to light. Each reagent is stable until the expiration date shown on the bottle label when stored as directed.

WARNING

All biological specimens and materials coming in contact with them are considered biohazards. Handle as if capable of transmitting infection[21,22] and dispose of with proper precautions in accordance with federal, state, and local regulations. Never pipette by mouth. Wear suitable protective clothing, eyewear, and gloves.

Some reagents are bottled with ProClin 300, and contain 0.003% of a mixture of CMIT/MIT (3:1), CAS number 55965-84-9.

Warning

H317 May cause an allergic skin reaction.

Wear protective gloves / eye protection. Wear protective clothing. Avoid breathing mist/vapours/spray. If skin irritation or rash occurs: Get medical advice/attention. IF ON SKIN: Wash with plenty of water. Dispose of contents/container in accordance with local/regional/national/international regulations.

CHARACTERIZATION

To ensure consistently high-quality reagents, each lot of antibody is tested for conformance with characteristics of a standard reagent. Representative flow cytometric data is included in this data sheet.

WARRANTY

Unless otherwise indicated in any applicable BD general conditions of sale for non-US customers, the following warranty applies to the purchase of these products.

THE PRODUCTS SOLD HEREUNDER ARE WARRANTED ONLY TO CONFORM TO THE QUANTITY AND CONTENTS STATED ON THE LABEL OR IN THE PRODUCT LABELING AT THE TIME OF DELIVERY TO THE CUSTOMER. BD DISCLAIMS HEREBY ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR ANY PARTICULAR PURPOSE AND NONINFRINGEMENT. BD'S SOLE LIABILITY IS LIMITED TO EITHER REPLACEMENT OF THE PRODUCTS OR REFUND OF THE PURCHASE PRICE. BD IS NOT LIABLE FOR PROPERTY DAMAGE OR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING PERSONAL INJURY, OR ECONOMIC LOSS, CAUSED BY THE PRODUCT.

REFERENCES

1. Büchi G, Girotto M, Baldini G, et al. Differentiation phenotypes on cells of acute myeloid leukemia studied by My7, My9, My4, Mo1 and Ja monoclonal antibodies. *Pathologica.* 1987;79:699-704.
2. Cheson BD, Cassileth PA, Head DR, et al. Report of the National Cancer Institute–sponsored workshop on definitions of diagnosis and response in acute myeloid leukemia. *J Clin Oncol.* 1990;8:813-819.
3. Drexler HG. Classification of acute myeloid leukemias—a comparison of FAB and immunophenotyping. *Leukemia.* 1987;1:697-705.
4. Foon KA, Gale RP, Todd RF III. Recent advances in the immunologic classification of leukemia. *Semin Hematol.* 1986;23:257-283.
5. Gadd S. Cluster report: CD13. In: Knapp W, Dörken B, Gilks WR, et al., eds. *Leucocyte Typing IV: White Cell Differentiation Antigens.* New York, NY: Oxford University Press; 1989:782-784.
6. Griffin JD, Ritz J, Beveridge RP, Lipton JM, Daley JF, Schlossman SF. Expression of MY7 antigen on myeloid precursor cells. *Int J Cell Cloning.* 1983;1:33-48.
7. Lo Coco F, Pasqualetti D, Lopez M, et al. Immunophenotyping of acute myeloid leukemia: relevance of analysing different lineage-associated markers. *Blut.* 1989;58:235-240.
8. Sakai K, Hattori T, Sagawa K, Yokoyama M, Takatsuki K. Biochemical and functional characterization of MCS-2 antigen (CD13) on myeloid leukemic cells and polymorphonuclear leukocytes. *Cancer Res.* 1987;47:5572-5576.
9. van Dongen JJ, Lhermitte L, Böttcher S, et al. EuroFlow antibody panels for standardized n-dimensional flow cytometric immunophenotyping of normal, reactive and malignant leukocytes. *Leukemia.* 2012;26:1908-1975.
10. Lee SH, Crocker PR, Westaby S, et al. Isolation and immunocytochemical characterization of human bone marrow stromal macrophages in hemopoietic clusters. *J Exp Med.* 1988;168:1193-1198.
11. Look AT, Ashmun RA, Shapiro LH, et al. Report on the CD13 (aminopeptidase N) cluster Workshop. In: Knapp W, Dörken B, Gilks WR, et al., eds. *Leucocyte Typing IV: White Cell Differentiation Antigens.* New York, NY: Oxford University Press; 1989:784-787.
12. Pombo de Oliveira MS, Matutes E, Rani S, Morilla R, Catovsky D. Early expression of MCS2 (CD13) in the cytoplasm of blast cells from acute myeloid leukaemia. *Acta Haematol.* 1988;80:61-64.
13. Terstappen LW, Hollander Z, Meiners H, Loken MR. Quantitative comparison of myeloid antigens on five lineages of mature peripheral blood cells. *J Leukoc Biol.* 1990;48:138-148.
14. Zola H, Swart B, Nicholson I, Voss E. *Leukocyte and Stromal Cell Molecules: The CD Markers.* Hoboken, NJ: John Wiley & Sons, Inc.; 2007.
15. Bradstock KF, Favaloro EJ, Kabral A, Kerr A, Hughes WG, Musgrove E. Myeloid progenitor surface antigen identified by monoclonal antibody. *Br J Haematol.* 1985;61:11-20.
16. Kirshenbaum AS, Goff JP, Semere T, Foster B, Scott LM, Metcalfe DD. Demonstration that human mast cells arise from a progenitor cell population that is CD34(+), c-kit(+), and expresses aminopeptidase N (CD13). *Blood.* 1999;94:2333-2342.
17. Mina-Osorio P, Winnicka B, O'Conor C, et al. CD13 is a novel mediator of monocytic/endothelial cell adhesion. *J Leukoc Biol.* 2008;84:448-459.
18. Yeager CL, Ashmun RA, Williams RK, et al. Human aminopeptidase N is a receptor for human coronavirus 229E. *Nature.* 1992;357:420-422.
19. Ashmun RA, Holmes KV, Shapiro LH, et al. CD13 (aminopeptidase N) cluster workshop report. In: Schlossman SF, Boumsell L, Gilks W, et al., eds. *Leucocyte Typing V: White Cell Differentiation Antigens.* New York, NY: Oxford University Press; 1995:771-775.

20. Howard MR, Thomas L, Reid MM. Variable detection of myeloid antigens in childhood acute lymphoblastic leukaemia. *J Clin Pathol.* 1994;47:1006-1009.

21. *Protection of Laboratory Workers from Occupationally Acquired Infections; Approved Guideline — Third Edition.* Wayne, PA: Clinical and Laboratory Standards Institute; 2005. CLSI document M29-A3.

22. Centers for Disease Control. Perspectives in disease prevention and health promotion update: universal precautions for prevention of transmission of human immunodeficiency virus, hepatitis B virus, and other bloodborne pathogens in health-care settings. *MMWR.* 1988;37:377-388.

PATENTS AND TRADEMARKS