

Monoclonal Antibodies Detecting Human Antigens

CD117 (104D2)

Form	Catalog number
PE	340529
PerCP-Cy™5.5	333944
PE-Cy™7	339195
APC	341096

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

RESEARCH APPLICATIONS

Research applications include:

- Enumeration of progenitor subsets from bone marrow, peripheral blood, and cord blood¹⁻⁶
- Analysis of hematopoietic cell development⁵⁻⁷
- Characterization of leukemias and lymphomas⁸
- Investigation of mast cell chemotaxis⁹⁻¹¹

DESCRIPTION

Specificity

The CD117 antibody binds to a 145-kilodalton (kDa) type I transmembrane glycoprotein in the receptor tyrosine kinase (RTK) family.¹² The CD117 antigen is also known as c-kit and stem cell factor receptor (SCFR).

Antigen distribution

The CD117 antigen is expressed primarily on hematopoietic progenitor cells in the bone marrow.¹⁻⁶ Cells that express CD34, another marker for hematopoietic stem cells, can be divided into subpopulations based on the level of their CD117 expression: CD34⁺KIT(CD117)⁻, CD34⁺KIT^{lo}, and CD34⁺KIT^{hi}. The CD34⁺KIT^{lo} population is mainly in the CD34⁺CD38⁻ fraction containing the most primitive hematopoietic cells.⁴ The CD117 antigen is expressed at similar levels on primitive, erythroid, and granulomonocytic progenitor cells, even though these cell types respond differently to SCF.⁵ The CD117 antigen is also expressed on mast cells^{13,14} and neural crest-derived melanocytes.¹⁴ The CD117 antigen can activate several signaling pathways.^{10,11,15-18}

Clone

The CD117 antibody, clone 104D2,¹⁹ is derived from the hybridization of Sp2/0 mouse myeloma cells with spleen cells isolated from BALB/c mice immunized with the megakaryocytic cell line MOLM-1.

Composition

The CD117 antibody is composed of mouse IgG₁ heavy chains and kappa light chains.

Product configuration

The following are supplied in buffer 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
PE	50	20	10	1.0	10	Gelatin	0.1% Sodium azide
PerCP-Cy5.5	50	20	1.3	1.0	1.3	Gelatin	0.1% Sodium azide
PE-Cy7	100	5	6.25	0.5	12.5	Gelatin	0.1% Sodium azide

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Form	Number of tests	Volume per test (μL) ^a	Amount provided (μg)	Total volume (mL)	Concentration (μg/mL)	Stabilizer	Preservative
APC	100	5	5	0.5	10	Gelatin	0.1% Sodium azide

a. Volume required to stain 10⁶ cells.

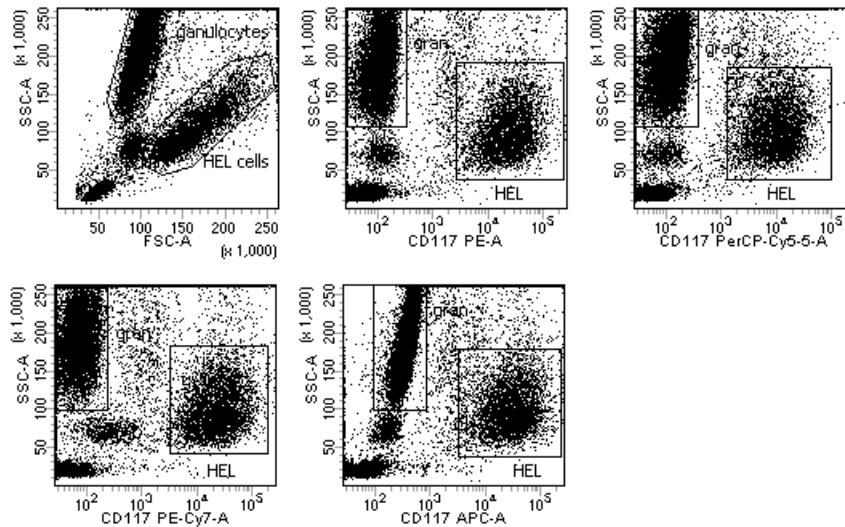
PROCEDURE

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

CAUTION Some PE-Cy7 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.

REPRESENTATIVE DATA

Flow cytometric analysis was performed on whole blood with HEL cells and gated on HEL cells and granulocytes. Laser excitation was at 488 nm or 635 nm. Representative data analyzed with a BD FACSTM 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^{20,21} 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.

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.

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REFERENCES

1. Berardi AC, Wang A, Levine JD, Lopez P, Scadden DT. Functional isolation and characterization of human hematopoietic stem cells. *Science*. 1995;267:104-108.
2. Briddell RA, Broudy VC, Bruno E, Brandt JE, Srou EF, Hoffman R. Further phenotypic characterization and isolation of human hematopoietic progenitor cells using a monoclonal antibody to the *c-kit* receptor. *Blood*. 1992;79:3159-3167.
3. Broudy VC, Lin N, Zsebo KM, et al. Isolation and characterization of a monoclonal antibody that recognizes the human *c-kit* receptor. *Blood*. 1992;79:338-346.
4. Gunji Y, Nakamura M, Osawa H, et al. Human primitive hematopoietic progenitor cells are more enriched in KIT^{low} cells than in KIT^{high} cells. *Blood*. 1993;82:3283-3289.
5. Olweus J, Terstappen LWMM, Thompson PA, Lund-Johansen F. Expression and function of receptors for stem cell factor and erythropoietin during lineage commitment of human hematopoietic progenitor cells. *Blood*. 1996;88:1594-1607.
6. Simmons PJ, Aylett GW, Niutta S, To LB, Juttner CA, Ashman LK. *c-kit* is expressed by primitive human hematopoietic cells that give rise to colony-forming cells in stroma-dependent or cytokine-supplemented culture. *Exp Hematol*. 1994;22:157-165.
7. Kinashi T, Springer TA. Steel factor and *c-kit* regulate cell-matrix adhesion. *Blood*. 1994;83:1033-1038.
8. Ratajczak MZ, Luger SM, DeRiel K, Abraham J, Calabretta B, Gewirtz AM. Role of the *KIT* protooncogene in normal and malignant human hematopoiesis. *Proc Natl Acad Sci USA*. 1992;89:1710-1714.
9. Meininger CJ, Yano H, Rottapel R, Bernstein A, Zsebo KM, Zetter BR. The *c-kit* receptor ligand functions as a mast cell chemoattractant. *Blood*. 1992;79:958-963.
10. Samayawardhena LA, Kapur R, Craig AW. Involvement of Fyn kinase in Kit and integrin-mediated Rac activation, cytoskeletal reorganization, and chemotaxis of mast cells. *Blood*. 2007;109:3679-3686.
11. Ueda S, Mizuki M, Ikeda H, et al. Critical roles of c-Kit tyrosine residues 567 and 719 in stem cell factor-induced chemotaxis: contribution of src family kinase and PI3-kinase on calcium mobilization and cell migration. *Blood*. 2002;99:3342-3349.
12. Zola H, Swart B, Nicholson I, Voss E. *Leukocyte and Stromal Cell Molecules: The CD Markers*. Hoboken, NJ: John Wiley & Sons, Inc.; 2007.
13. Nocka K, Buck J, Levi E, Besmer P. Candidate ligand for the *c-kit* transmembrane kinase receptor: KL, a fibroblast derived growth factor stimulates mast cells and erythroid progenitors. *EMBO J*. 1990;9:3287-3294.
14. Nocka K, Majumder S, Chabot B, et al. Expression of *c-kit* gene products in known cellular targets of W mutations in normal and W mutant mice—evidence for an impaired *c-kit* kinase in mutant mice. *Genes Dev*. 1989;3:816-826.
15. Hashimoto K, Matsumura I, Tsujimura T, et al. Necessity of tyrosine 719 and phosphatidylinositol 3'-kinase-mediated signal pathway in constitutive activation and oncogenic potential of *c-kit* receptor tyrosine kinase with the Asp814Val mutation. *Blood*. 2003;101:1094-1102.
16. Deberry C, Mou S, Linnekin D. Stat1 associates with c-kit and is activated in response to stem cell factor. *Biochem J*. 1997;327 73-80.
17. Maddens S, Charruyer A, Plo I, et al. Kit signaling inhibits the sphingomyelin-ceramide pathway through PLCγ1: implication in stem cell factor radioprotective effect. *Blood*. 2002;100:1294-1301.
18. Linnekin D, DeBerry CS, Mou S. Lyn associates with the juxtamembrane region of c-Kit and is activated by stem cell factor in hematopoietic cell lines and normal progenitor cells. *J Biol Chem*. 1997;272:27450-27455.
19. Ashman LK, Cambareri AC, Nguyen L, Bühring H-J. CD117 Workshop Panel report. In: Kishimoto T, Kikutani H, von dem Borne AEG, et al, eds. *Leucocyte Typing VI: White Cell Differentiation Antigens*. New York, NY: Garland Publishing, Inc; 1997:816-818.
20. *Protection of Laboratory Workers from Occupationally Acquired Infections; Approved Guideline—Third Edition*. Wayne, PA: Clinical and Laboratory Standards Institute; 2005. CLSI document M29-A3.
21. 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.

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