BD CD123 (9F5)

Monoclonal Antibodies Detecting Human Antigens

Form	Catalog number
PE	340545
APC	658171

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

Research Applications

Research applications include:

- Analysis of interleukin-3 (IL-3)–dependent differentiation and proliferation[1]
- Immunophenotyping of leukemias and lymphomas[2]
- Characterization of precursor stem cell populations[3]
- Investigation of dendritic cell subpopulations[3-7]
- Enumeration of basophils[8-11]

Description

Specificity

The CD123 antibody recognizes a 70-kilodalton (kDa) type I integral membrane glycoprotein, also known as the interleukin-3 receptor α-chain (IL-3Rα).[12]

Antigen distribution

The CD123 antigen is expressed on a subset of peripheral blood dendritic cells,[3,5-7] on a subset of progenitor cells,[3] monocytes,[13] eosinophils,[13] mast cells,[14] and basophils.[8-11] The expression of CD123 is induced when isolated neutrophils are cultured overnight with granulocyte-macrophage colony-stimulating factor (GM-CSF).[15] Since IL-3 stimulates the production of hematopoietic cells, such as megakaryocytes, erythroid cells, and B cells, it is assumed that these lineages can also express the CD123 antigen.[13]

The CD123 antigen binds IL-3 with low affinity and associates with the 120–140 kDa β chain (CD131) to form the high affinity IL-3 receptor. The β chain is common to the receptors for IL-5 and GM-CSF.[16]

Clone

The CD123 antibody, clone 9F5,[16] is derived from the hybridization of NS-1 mouse myeloma cells with spleen cells isolated from BALB/c mice immunized with IL-3Rα–transfected COS cells.[13]

Composition

The CD123 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.

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

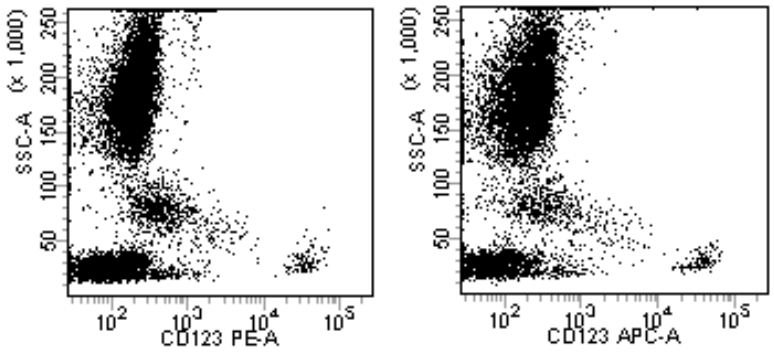
Form	Number of tests	Volume per test (µL)	Amount provided (µg)	Total volume (mL)	Concentration (µg/mL)	Stabilizer	Preservative
PE	50	20	12.5	1.0	12.5	Gelatin	0.1% Sodium azide
APC	100	5	12.5	0.5	25	Gelatin	0.1% Sodium azide

Procedure

Go to 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. Laser excitation was at 488 nm or 635 nm. Representative data analyzed with a BD flow cytometer is shown in the following plots.



Handling and Storage

Store vials at 2–8 °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[17,18] 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.

Go to regdocs.bd.com to download the Safety Data Sheet.

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. Baumeister T, Rössner S, Pech G, et al. Interleukin-3Rα^{+} myeloid dendritic cells and mast cells develop simultaneously from different bone marrow precursors in cultures with interleukin-3. *J Invest Dermatol.* 2003;121:280-288.
2. 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.
3. Olweus J, BitMansour A, Warnke R, et al. Dendritic cell ontogeny: a human dendritic cell lineage of myeloid origin. *Proc Natl Acad Sci USA.* 1997;94:12551-12556.
4. Bauer M, Redecke V, Ellwart JW, et al. Bacterial CpG-DNA triggers activation and maturation of human CD11c-, CD123+ dendritic cells. *J Immunol.* 2001;166:5000-5007.
5. Grouard G, Rissoan MC, Filgueira L, Durand I, Banchereau J, Liu YJ. The enigmatic plasmocytoid T cells develop into dendritic cells with interleukin (IL)-3 and CD40-ligand. *J Exp Med.* 1997;185:1101-1111.
6. Hart DN, McKenzie JL. Isolation and characterization of human tonsil dendritic cells. *J Exp Med.* 1988;168:157-170.
7. O'Doherty U, Peng M, Gezelter S, et al. Human blood contains two subsets of dendritic cells, one immunologically mature and the other immature. *Immunology.* 1994;82:487-493.
8. Agis H, Beil WJ, Bankl HC, et al. Mast cell-lineage versus basophil lineage involvement in myeloproliferative and myelodysplastic syndromes: diagnostic role of cell-immunophenotyping. *Leuk Lymphoma.* 1996;22:187-204.
9. Agis H, Füreder W, Bankl HC, et al. Comparative immunophenotypic analysis of human mast cells, blood basophils and monocytes. *Immunology.* 1996;87:535-543.
10. Valent P. Immunophenotypic characterization of human basophils and mast cells. *Chem Immunol.* 1995;61:34-48.
11. Valent P, Besemer J, Muhm M, Majdic O, Lechner K, Bettelheim P. Interleukin 3 activates human blood basophils via high-affinity binding sites. *Proc Natl Acad Sci USA.* 1989;86:5542-5546.
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. Sun Q, Woodcock JM, Rapoport A, et al. Monoclonal antibody 7G3 recognizes the N-terminal domain of the human interleukin-3 (IL-3) receptor alpha-chain and functions as a specific IL-3 receptor antagonist. *Blood.* 1996;87:83-92.
14. Dahl C, Hoffmann HJ, Saito H, Schiotz PO. Human mast cells express receptors for IL-3, IL-5 and GM-CSF; a partial map of receptors on human mast cells cultured in vitro. *Allergy.* 2004;59:1087-1096.
15. Smith WB, Guida L, Sun Q, et al. Neutrophils activated by granulocyte-macrophage colony-stimulating factor express receptors for interleukin-3 which mediate class II expression. *Blood.* 1995;86:3938-3944.

16. Miyajima A. CDw123 (interleukin 3 receptor α chain) 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; 1998:854-855.

17. *Protection of Laboratory Workers from Occupationally Acquired Infections; Approved Guideline — Fourth Edition.* Wayne, PA: Clinical and Laboratory Standards Institute; 2014. CLSI document M29-A4.

18. Centers for Disease Control and Prevention. 2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings. https://www.cdc.gov/infectioncontrol/guidelines/isolation/index.html. Accessed March 12, 2019.

Patents and Trademarks

For US patents that may apply, see bd.com/patents.

BD and the BD Logo are trademarks of Becton, Dickinson and Company or its affiliates. All other trademarks are the property of their respective owners. © 2024 BD. All rights reserved.

Contact Information

Becton, Dickinson and Company
BD Biosciences
155 North McCarthy Boulevard
Milpitas, California 95035 USA

bdbiosciences.com
ResearchApplications@bd.com