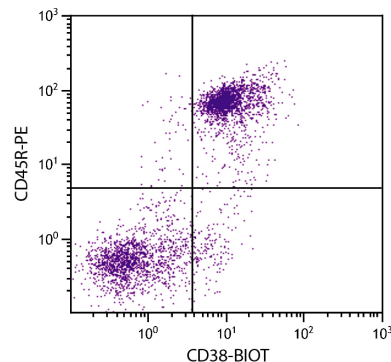




Rat Anti-Mouse CD38

Cat. No.	Format	Size
1635-01	Purified (UNLB)	0.5 mg
1635-02	Fluorescein (FITC)	0.5 mg
1635-08	Biotin (BIOT)	0.5 mg
1635-09	R-phycoerythrin (PE)	0.1 mg
1635-09L	R-phycoerythrin (PE)	0.2 mg
1635-11	Allophycocyanin (APC)	0.1 mg
1635-13	Spectral Red® (SPRD)	0.1 mg
1635-14	Low Endotoxin, Azide-Free (LE/AF)	0.5 mg



BALB/c mouse splenocytes were stained with Rat Anti-Mouse CD38-BIOT (SB Cat. No. 1635-08) and Rat Anti-Mouse CD45R-PE (SB Cat. No. 1665-09) followed by Streptavidin-FITC (SB Cat. No. 7100-02).

Overview

Clone	NIMR-5 (NIM-R5)
Isotype	Rat (LOU) IgG _{2a} K
Immunogen	BCL1 plasma membrane glycoproteins
Specificity	Mouse CD38; Mr 42 kDa
Alternate Name(s)	T10, ADP-ribosyl cyclase, cyclic ADP-ribose hydrolase

Description

Murine CD38, a type II transmembrane glycoprotein, is a bifunctional ectoenzyme capable of catabolizing nicotinamide adenine dinucleotide (NAD⁺) to cyclic ADP-ribose (cADPR) and then hydrolyzing cADPR to adenosine diphosphoribose (ADPR). It is expressed at high levels on the surface of peripheral B-lineage cells and at low density on germinal center B cells from unimmunized mice. It has also been reported to be expressed at moderate levels on NK cells, a proportion of peripheral T cells, and a subpopulation of thymocytes which are mostly TCRαβ⁺, CD4⁺, CD8⁻. Murine CD38 is also expressed by all Mac-1⁺ macrophages in the peritoneal cavities of unimmunized mice, but not by unstimulated bone-marrow-derived macrophages. Monoclonal antibodies to CD38 have been shown to induce B and T cell proliferation, protect B cells from apoptosis, and inhibit B lymphopoiesis.

Applications

FC – Quality tested¹⁻¹⁸
 IHC-FS – Reported in literature^{4,5}
 IP – Reported in literature^{1-3,10,19}
 ELISA – Reported in literature¹⁴
 Sep – Reported in literature¹³
 Activ – Reported in literature^{1,20-22}
 Costim – Reported in literature^{3,23-26}
 Stim – Reported in literature^{1,8,12,16,18,26-29}
 Apop – Reported in literature^{14-16,18}
 Drug Delivery – Reported in literature³⁰
 Block – Reported in literature^{5,31-33}

Working Dilutions

Flow Cytometry	FITC and BIOT conjugates	≤ 1 μg/10 ⁶ cells
	PE, APC, and SPRD conjugates	≤ 0.2 μg/10 ⁶ cells
For flow cytometry, the suggested use of these reagents is in a final volume of 100 μL		

Other Applications Since applications vary, you should determine the optimum working dilution for the product that is appropriate for your specific need.

For Research Use Only. Not for Diagnostic or Therapeutic Use.

Handling and Storage

- The purified (UNLB) antibody is supplied as 0.5 mg of purified immunoglobulin in 1.0 mL of borate buffered saline, pH 8.2. *No preservatives or amine-containing buffer salts added.* Store at 2-8°C.
- The fluorescein (FITC) conjugate is supplied as 0.5 mg in 1.0 mL of PBS/NaN₃. Store at 2-8°C.
- The biotin (BIOT) conjugate is supplied as 0.5 mg in 1.0 mL of PBS/NaN₃. Store at 2-8°C.
- The R-phycoerythrin (PE) conjugate is supplied as 0.1 mg in 1.0 mL or 0.2 in 2.0 mL of PBS/NaN₃ and a stabilizing agent. Store at 2-8°C. **Do not freeze!**
- The allophycocyanin (APC) conjugate is supplied as 0.1 mg in 1.0 mL of PBS/NaN₃ and a stabilizing agent. Store at 2-8°C. **Do not freeze!**
- The Spectral Red[®] (SPRD) conjugate is supplied as 0.1 mg in 1.0 mL of PBS/NaN₃ and a stabilizing agent. Store at 2-8°C. **Do not freeze!**
- The low endotoxin, azide-free (LE/AF) antibody is supplied as 0.5 mg of purified immunoglobulin in 1.0 mL of PBS. **Aliquot and store at or below -20°C.**
- Protect fluorochrome-conjugated forms from light. Reagents are stable for the period shown on the label if stored as directed.

Warning

Some reagents contain sodium azide. Please refer to product specific SDS.

References

1. Santos-Argumedo L, Teixeira C, Preece G, Kirkham PA, Parkhouse RM. A B lymphocyte surface molecule mediating activation and protection from apoptosis via calcium channels. *J Immunol.* 1993;151:3119-30. (Immunogen, FC, IP, Activ, Stim)
2. Harada N, Santos-Argumedo L, Chang R, Grimaldi JC, Lund FE, Brannan CI, et al. Expression cloning of a cDNA encoding a novel murine B cell activation marker. Homology to human CD38. *J Immunol.* 1993;151:3111-18. (FC, IP)
3. Lund FE, Solvason NW, Cooke MP, Heath AW, Grimaldi JC, Parkhouse RM, et al. Signaling through murine CD38 is impaired in antigen receptor-unresponsive B cells. *Eur J Immunol.* 1995;25:1338-45. (FC, IP, Costim)
4. Bean AG, Godfrey DI, Ferlin WG, Santos-Argumedo L, Parkhouse RM, Howard MC, et al. CD38 expression on mouse T cells: CD38 defines functionally distinct subsets of $\alpha\beta$ TCR⁺CD4⁺CD8⁻ thymocytes. *Int Immunol.* 1995;7:213-21. (FC, IHC-FS)
5. Oliver AM, Martin F, Kearney JF. Mouse CD38 is down-regulated on germinal center B cells and mature plasma cells. *J Immunol.* 1997;158:1108-15. (FC, IHC-FS, Block)
6. Zhao Y, Lin Y, Zhan Y, Yang G, Louie J, Harrison DE, et al. Murine hematopoietic stem cell characterization and its regulation in BM transplantation. *Blood.* 2000;96:3016-22. (FC)
7. Tajima F, Deguchi T, Laver JH, Zeng H, Ogawa M. Reciprocal expression of CD38 and CD34 by adult murine hematopoietic stem cells. *Blood.* 2001;97:2618-24. (FC)
8. Donis-Hernández FR, Parkhouse RM, Santos-Argumedo L. Ontogeny, distribution and function of CD38-expressing B lymphocytes in mice. *Eur J Immunol.* 2001;31:1261-7. (FC, Stim)
9. Higuchi Y, Zeng H, Ogawa M. CD38 expression by hematopoietic stem cells of newborn and juvenile mice. *Leukemia.* 2003;17:171-4. (FC)
10. Moreno-García ME, Partida-Sánchez S, Primack J, Sumoza-Toledo A, Muller-Steffner H, Schuber F, et al. CD38 is expressed as noncovalently associated homodimers on the surface of murine B lymphocytes. *Eur J Biochem.* 2004;271:1025-34. (FC, IP)
11. Simas JP, Marques S, Bridgeman A, Efstathiou S, Adler H. The M2 gene product of murine gammaherpesvirus 68 is required for efficient colonization of splenic follicles but is not necessary for expansion of latently infected germinal centre B cells. *J Gen Virol.* 2004;85:2789-97. (FC)
12. Moreno-García ME, López-Bojórques LN, Zentella A, Humphries LA, Rawlings DJ, Santos-Argumedo L. CD38 signaling regulates B lymphocyte activation via a phospholipase C (PLC)- γ 2-independent, protein kinase C, phosphatidylcholine-PLC, and phospholipase D-dependent signaling cascade. *J Immunol.* 2005;174:2687-95. (FC, Activ, Stim)
13. Sandoval-Montes C, Santos-Argumedo L. CD38 is expressed selectively during the activation of a subset of mature T cells with reduced proliferation but improved potential to produce cytokines. *J Leukoc Biol.* 2005;77:513-21. (FC, Sep)
14. Lund FE, Muller-Steffner H, Romero-Ramirez H, Moreno-García ME, Partida-Sánchez S, Makris M, et al. CD38 induces apoptosis of a murine pro-B leukemic cell line by a tyrosine kinase-dependent but ADP-ribosyl cyclase- and NAD glycohydrolase-independent mechanism. *Int Immunol.* 2006;18:1029-42. (FC, ELISA, Apop)
15. Mayo L, Jacob-Hirsch J, Amariglio N, Rechavi G, Moutin M, Lund FE, et al. Dual role of CD38 in microglial activation and activation-induced cell death. *J Immunol.* 2008;181:92-103. (FC, Apop)
16. Rodríguez-Alba JC, Moreno-García ME, Sandoval-Montes C, Rosales-García VH, Santos-Argumedo L. CD38 induces differentiation of immature transitional 2 B lymphocytes in the spleen. *Blood.* 2008;111:3644-52. (FC, Stim, Apop)
17. Levy A, Blacher E, Vaknine H, Lund FE, Stein R, Mayo L. CD38 deficiency in the tumor microenvironment attenuates glioma progression and modulates features of tumor-associated microglia/macrophages. *Neuro Oncol.* 2012;14:1037-49. (FC)
18. Romero-Ramírez H, Morales-Guadarrama MT, Pelayo R, López-Santiago R, Santos-Argumedo L. CD38 expression in early B-cell precursors contributes to extracellular signal-regulated kinase-mediated apoptosis. *Immunology.* 2015;144:271-81. (FC, Apop, Stim)
19. Vences-Catalán F, Rajapaksa R, Levy S, Santos-Argumedo L. The CD19/CD81 complex physically interacts with CD38 but is not required to induce proliferation in mouse B lymphocytes. *Immunology.* 2012;137:48-55. (IP)
20. Kirkham PA, Santos-Argumedo L, Harnett MM, Parkhouse RM. Murine B-cell activation via CD38 and protein tyrosine phosphorylation. *Immunology.* 1994;83:513-6. (Activ)
21. Santos-Argumedo L, Kincade PW, Partida-Sánchez S, Parkhouse RM. CD44-stimulated dendrite formation ('spreading') in activated B cells. *Immunology.* 1997;90:147-53. (Activ)
22. Partida-Sánchez S, Garibay-Escobar A, Frixione E, Parkhouse RM, Santos-Argumedo L. CD45R, CD44 and MHC class II are signaling molecules for the cytoskeleton-dependent induction of dendrites and motility in activated B cells. *Eur J Immunol.* 2000;30:2722-8. (Activ)
23. Sato S, Miller AS, Inaoki M, Bock CB, Jansen PJ, Tang ML, et al. CD22 is both a positive and negative regulator of B lymphocyte antigen receptor signal transduction: altered signaling in CD22-deficient mice. *Immunity.* 1996;5:551-62. (Costim)
24. Manjarrez-Orduño N, Moreno-García ME, Fink K, Santos-Argumedo L. CD38 cross-linking enhances TLR-induced B cell proliferation but decreases IgM plasma cell differentiation. *Eur J Immunol.* 2007;37:358-67. (Costim)
25. Inagaki T, Yoshimi T, Kobayashi S, Kawahara M, Nagamune T. Analysis of cellular phenotype during in vitro immunization of murine splenocytes for generating antigen-specific immunoglobulin. *J Biosci Bioeng.* 2013;115:339-45. (Costim)
26. Chen Q, Ross AC. All-trans-retinoic acid and CD38 ligation differentially regulate CD1d expression and α -galactosylceramide-induced immune responses. *Immunobiology.* 2015;220:32-41. (Costim, Stim)
27. Wykes M, Poudrier J, Lindstedt R, Gray D. Regulation of cytoplasmic, surface and soluble forms of CD40 ligand in mouse B cells. *Eur J Immunol.* 1998;28:548-59. (Stim)
28. Moyron-Quiroz JE, Partida-Sánchez S, Donis-Hernández R, Sandoval-Montes C, Santos-Argumedo L. Expression and function of CD22, a B-cell restricted molecule. *Scand J Immunol.* 2002;55:343-51. (Stim)
29. Chen Q, Ross AC. Vitamin A and immune function: retinoic acid modulates population dynamics in antigen receptor and CD38-stimulated splenic B cells. *Proc Natl Acad Sci USA.* 2005;102:14142-9. (Stim)
30. D'Abundo L, Callegari E, Bresin A, Chillemi A, Elamin BK, Guerriero P, et al. Anti-leukemic activity of microRNA-26a in a chronic lymphocytic leukemia mouse model. *Oncogene.* 2017;36:6617-26. (Drug Delivery)
31. Wykes MN, Beattie L, Macpherson GG, Hart DN. Dendritic cells and follicular dendritic cells express a novel ligand for CD38 which influences their maturation and antibody responses. *Immunology.* 2004;113:318-27. (Block)
32. Goldstein MJ, Levy R, Kohrt H inventors; The Board Of Trustees of the Leland Stanford Junior University, assignee. Medical uses of CD38 agonists. United States patent application publication US 2016/0235842 A1. 2016 Aug 18. (Block)
33. Karakasheva TA, Waldron TJ, Eruslanov E, Kim S, Lee J, O'Brien S, et al. CD38-expressing myeloid-derived suppressor cells promote tumor growth in a murine model of esophageal cancer. *Cancer Res.* 2015;75:4074-85. (Block)

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