

**SM066B****Monoclonal Antibody to CD169 / SIGLEC1 - Biotin**

<b>Alternate names:</b>	Sialic acid-binding Ig-like lectin 1, Sialoadhesin, Siglec-1
<b>Quantity:</b>	0.2 mg
<b>Concentration:</b>	0.4 mg/ml (after reconstitution)
<b>Background:</b>	<p>The sialoadhesin family has 4 members: CD22, a B cell specific marker; myelin associated glycoprotein (MAG), which is expressed on oligodendrocytes and Schwann cells; CD33, a myeloid differentiation antigen; and sialoadhesin, which is expressed only by a subpopulation of tissue macrophages. Involved in cell-cell interactions, sialoadhesin is structurally related to the 3 other listed members of the sialoadhesin family. CD169 is a sialic acid binding site of sialoadhesin. CD169 is a macrophage receptor expressed on stromal macrophages in many tissues, particularly found in lymph nodes, bone marrow and spleen.</p> <p>Metallophilic macrophages are a subpopulation of mature resident tissue macrophages. They show high non specific esterase activity and can be distinguished from splenic marginal zone macrophages by antibody staining and the lack of FITC-Ficoll uptake.</p>
<b>Uniprot ID:</b>	<a href="#">Q62230</a>
<b>NCBI:</b>	<a href="#">NP_035556.3</a>
<b>GeneID:</b>	<a href="#">20612</a>
<b>Host / Isotype:</b>	Rat / IgG2a
<b>Clone:</b>	MOMA-1
<b>Immunogen:</b>	Mouse lymph node tissue <b>Remarks:</b> The antigen is found intracellularly and on cell surface on metallophilic macrophages.
<b>Format:</b>	<b>State:</b> Lyophilized purified IgG fraction <b>Purification:</b> Affinity Chromatography <b>Buffer System:</b> PBS, pH 7.2 <b>Preservatives:</b> 0.05% Kathon <b>Stabilizers:</b> 5 mg/ml BSA <b>Label:</b> Biotin <b>Reconstitution:</b> Restore by adding 0.5 ml distilled water (= 0.4 mg/ml Stock Solution)
<b>Applications:</b>	<b>Immunohistochemistry on Frozen Sections:</b> 0.5-1 µg/ml (1/400-1/800). Does not react on routinely processed Paraffin Sections. <b>Recommended Positive Control:</b> Mouse spleen. Other applications not tested. Optimal dilutions are dependent on conditions and should be determined by the user.
<b>Specificity:</b>	Monoclonal antibody MOMA-1 is a useful marker for the identification of macrophage subpopulations in various organs, mostly characterized by a high level of non-specific esterase expression. Staining is particularly noteworthy with the metallophilic macrophages adjacent to the marginal zone of the spleen.

MOMA-1 is also very suitable for differentiation of non-metallophilic marginal zone macrophages as detected by the monoclonal antibody ER-TR9 (Cat# BM4011). In addition, MOMA-1 detects macrophages at inflammatory sites and is positive with Kupffer cells.

The antigen is differentially induced in in vitro derived macrophages depending on the colony-stimulating factor applied (IL-3 > M-CSF > GM-CSF).

The antigen detected by MOMA-1 is CD169, also known as Sialoadhesin.

#### **Antigen Distribution**

**Isolated Cells:** No reactivity of MOMA-1 was found with dendritic cells, peritoneal resident macrophages, peritoneal exudate cells, bone marrow or blood cells.

**Tissue Sections:** Distinct macrophage subpopulations of lymphoid organs express the antigen. In the spleen, they are localized at the marginal sinus forming a ring around the periarteriolar lymphocyte sheath and follicular areas at the inner side of marginal zones. In lymph nodes, they are localized in the sinusoids and medullary cords, but not within follicular areas or paracortex. In Peyer's patches they are localized in the interfollicular areas at the serosal side. Kupffer cells in the liver can be clearly stained by MOMA-1. No MOMA-1-positive macrophages were found in the thymus, brain, kidney, liver, skin or heart. In non-lymphoid organs, the antigen is only found on a macrophage subpopulation in the lamina propria of the villi of the small intestine.

#### **Species Reactivity:**

**Tested:** Mouse: Subpopulation of Mature Resident Tissue Macrophages.

#### **Storage:**

Store lyophilized at 2-8°C for 6 months or at -20°C long term.

After reconstitution store the antibody undiluted at 2-8°C for one month or (in aliquots) at -20°C long term.

Avoid repeated freezing and thawing.

Shelf life: one year from despatch.

#### **Product Citations:**

##### **Purchased from Acris:**

1. de Andrés B, Cortegano I, Serrano N, del Rio B, Martín P, Gonzalo P, et al. A population of CD19<sup>high</sup>CD45R<sup>-</sup>/lowCD21<sup>low</sup> B lymphocytes poised for spontaneous secretion of IgG and IgA antibodies. *J Immunol.* 2007 Oct 15;179(8):5326-34. PubMed PMID: 17911619.

##### *Unconjugated, purified antibody is cited in:*

2. Movita D, Kreefft K, Biesta P, van Oudenaren A, Leenen PJ, Janssen HL, et al. Kupffer cells express a unique combination of phenotypic and functional characteristics compared with splenic and peritoneal macrophages. *J Leukoc Biol.* 2012 Oct;92(4):723-33. doi: 10.1189/jlb.1111566. Epub 2012 Jun 8. PubMed PMID: 22685319.

3. Lam, L;Watson, A;Ryman, K;Klimstra, W. Gamma-interferon exerts a critical early restriction on replication and dissemination of yellow fever virus vaccine strain 17D-204. *npj Vaccines* 2018, 3, 1. 10.1038/s41541-017-0039-z

4. Lam, LKM. Gamma-Interferon Attenuates Yellow Fever Virus Vaccine Strain 17D. Thesis 2018.

#### **General Readings:**

1. Kraal G, Janse M. Marginal metallophilic cells of the mouse spleen identified by a monoclonal antibody. *Immunology.* 1986 Aug;58(4):665-9. PubMed PMID: 3733156.

2. Oetke C, Kraal G, Crocker PR. The antigen recognized by MOMA-I is sialoadhesin. *Immunol Lett.* 2006 Jul 15;106(1):96-8. Epub 2006 May 8. PubMed PMID: 16716409.

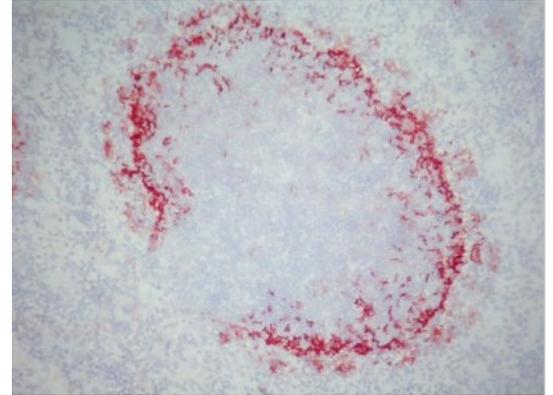
3. Tumanov AV, Grivennikov SI, Kruglov AA, Shebzukhov YV, Koroleva EP, Piao Y, et al. Cellular source and molecular form of TNF specify its distinct functions in organization of secondary lymphoid organs. *Blood*. 2010 Nov 4;116(18):3456-64. doi: 10.1182/blood-2009-10-249177. Epub 2010 Jul 15. PubMed PMID: 20634375.
4. Karlsson MC, Guinamard R, Bolland S, Sankala M, Steinman RM, Ravetch JV. Macrophages control the retention and trafficking of B lymphocytes in the splenic marginal zone. *J Exp Med*. 2003 Jul 21;198(2):333-40. PubMed PMID: 12874264.
5. Kanayama N, Cascalho M, Ohmori H. Analysis of marginal zone B cell development in the mouse with limited B cell diversity: role of the antigen receptor signals in the recruitment of B cells to the marginal zone. *J Immunol*. 2005 Feb 1;174(3):1438-45. PubMed PMID: 15661902.
6. Höpken UE, Achtman AH, Krüger K, Lipp M. Distinct and overlapping roles of CXCR5 and CCR7 in B-1 cell homing and early immunity against bacterial pathogens. *J Leukoc Biol*. 2004 Sep;76(3):709-18. Epub 2004 Jun 14. PubMed PMID: 15197239.
7. Ferguson AR, Youd ME, Corley RB. Marginal zone B cells transport and deposit IgM-containing immune complexes onto follicular dendritic cells. *Int Immunol*. 2004 Oct;16(10):1411-22. Epub 2004 Aug 23. PubMed PMID: 15326094.
8. Girkontaite I, Sakk V, Wagner M, Borggrete T, Tedford K, Chun J, et al. The sphingosine-1-phosphate (S1P) lysophospholipid receptor S1P3 regulates MAdCAM-1+ endothelial cells in splenic marginal sinus organization. *J Exp Med*. 2004 Dec 6;200(11):1491-501. PubMed PMID: 15583019.
9. Acevedo-Suárez CA, Hulbert C, Woodward EJ, Thomas JW. Uncoupling of anergy from developmental arrest in anti-insulin B cells supports the development of autoimmune diabetes. *J Immunol*. 2005 Jan 15;174(2):827-33. PubMed PMID: 15634904.
10. Birjandi SZ, Ippolito JA, Ramadorai AK, Witte PL. Alterations in marginal zone macrophages and marginal zone B cells in old mice. *J Immunol*. 2011 Mar 15;186(6):3441-51. doi: 10.4049/jimmunol.1001271. Epub 2011 Feb 9. PubMed PMID: 21307289.
11. Bhattacharyya, S. et al. (2011) NFATc1 affects mouse splenic B cell function by controlling the calcineurin-NFAT signaling network. *J Exp Med*. Apr 4. [Epub ahead of print]
12. Jang IK, Cronshaw DG, Xie LK, Fang G, Zhang J, Oh H, et al. Growth-factor receptor-bound protein-2 (Grb2) signaling in B cells controls lymphoid follicle organization and germinal center reaction. *Proc Natl Acad Sci U S A*. 2011 May 10;108(19):7926-31. doi: 10.1073/pnas.1016451108. Epub 2011 Apr 20. PubMed PMID: 21508326.
13. Rehm A, Mensen A, Schradi K, Gerlach K, Wittstock S, Winter S, et al. Cooperative function of CCR7 and lymphotoxin in the formation of a lymphoma-permissive niche within murine secondary lymphoid organs. *Blood*. 2011 Jul 28;118(4):1020-33. doi: 10.1182/blood-2010-11-321265. Epub 2011 May 17. PubMed PMID: 21586747.
14. Mattsson J, Yrlid U, Stensson A, Schön K, Karlsson MC, Ravetch JV, et al. Complement activation and complement receptors on follicular dendritic cells are critical for the function of a targeted adjuvant. *J Immunol*. 2011 Oct 1;187(7):3641-52. doi: 10.4049/jimmunol.1101107. Epub 2011 Aug 31. PubMed PMID: 21880985.
15. Whipple EC, Shanahan RS, Ditto AH, Taylor RP, Lindorfer MA. Analyses of the in vivo trafficking of stoichiometric doses of an anti-complement receptor 1/2

monoclonal antibody infused intravenously in mice. J Immunol. 2004 Aug 15;173(4):2297-306. PubMed PMID: 15294942.

16. Zhang Z, Zhou L, Yang X, Wang Y, Zhang P, Hou L, et al. Notch-RBP-J-independent marginal zone B cell development in IgH transgenic mice with VH derived from a natural polyreactive antibody. PLoS One. 2012;7(6):e38894. doi: 10.1371/journal.pone.0038894. Epub 2012 Jun 13. PubMed PMID: 22719978.

**Pictures:**

**Immunohistochemistry:** SM066B  
Metallophilic Macrophages antibody  
staining of Mouse Spleen Frozen Section.



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