

Product Information

MONOCLONAL ANTI-ICAM-3 (CD50)

CLONE 186-2G9

Purified Mouse Immunoglobulin

Product Number **I 9031**

Product Description

Monoclonal Anti-ICAM-3 (Intracellular Adhesion Molecule 3) (mouse IgG2 isotype) is derived from the hybridoma produced by the fusion of splenocytes from BALB/c mouse immunized with stimulated human leukocytes and mouse myeloma NS1 cells. The antibody is purified by Protein A chromatography.

Monoclonal Anti-ICAM-3 recognizes human CD50 (leukocyte differentiation antigen or ICAM-3), an N-glycosylated glycoprotein (120 kDa) with intrachain disulfide bonds. It has been used in immunoblotting, immunoprecipitation, immunofluorescence, flow cytometry and immunohistochemistry on frozen or formalin-fixed, paraffin-embedded tissue sections.

The ICAMs are members of the Ig-superfamily, which together with the cadherins, selectins and integrins form the adhesion receptor family. To date, five ICAMs have been identified, which share characteristic structural features, such as large heavily glycosylated extracellular Ig-like domains and a short cytoplasmic tail. ICAMs play a prominent role in regulating the migration and activation of both dendritic cells and T lymphocytes in the immune system. The ICAMs are not functionally redundant, since they have quite distinct expression profiles and can bind LFA-1 differentially. ICAM-3 is constitutively and abundantly expressed by all leukocytes, whereas ICAM-1 and ICAM-2 are expressed at very low levels. ICAM-1 is rapidly upregulated by inflammatory cytokines. Two other members of the ICAM family, ICAM-4 and ICAM-5, are expressed on the red-cell lineage of hematopoietic cells and in the brain, respectively.^{1,2}

In the immune system ICAMs regulate cell adhesion through interactions with their receptors. For a long time, the primary known receptor for ICAM-1, ICAM-2 and ICAM-3 was the $\beta 2$ integrin LFA-1, but other $\beta 2$ integrins, namely Mac-1 and $\alpha_D \beta 2$ integrin, also bind to ICAM-1, ICAM-2 and/or ICAM-3 (although at different affinities). Very recently, another adhesion receptor, DC-SIGN belonging to a structurally different family of molecules (the C-type lectins) has been shown to bind to ICAM-2 and ICAM-3 with high affinity.

The binding of ICAM-1 and ICAM-2 by T cells is mediated solely by LFA-1, whereas both LFA-1 and DC-SIGN on dendritic cells interact with ICAM-3. The adhesion receptors LFA-1 and DC-SIGN show similar binding activity; both bind to ICAM-2 and ICAM-3. DC-SIGN-ICAM-3 interactions play a major role in the DC-induced activation of T cells within the lymph node. ICAM-3 not only functions as an adhesion molecule, but also is clearly emerging as a potent signaling molecule.^{3,4,5}

Reagent

Monoclonal Anti-ICAM-3 is supplied as a solution in phosphate buffered saline, pH 7.4, with 0.08% sodium azide as a preservative.

Precautions and Disclaimer

Due to the sodium azide content, a material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazards and safe handling practices.

Storage/Stability

Store at -20°C . Freeze the solution in working aliquots for extended storage. Avoid repeated freezing and thawing to prevent denaturing the antibody. Do not store in a frost-free freezer. The antibody is stable for at least 12 months when stored appropriately. Working dilutions should be discarded if not used within 12 hours.

Product Profile

A recommended working concentration of 2 to 4 $\mu\text{g/ml}$ is determined by immunohistochemistry on formalin-fixed and paraffin-embedded human tonsil tissue sections.

A recommended working concentration for immunoblotting is 1 to 5 $\mu\text{g/ml}$. For flow cytometry, immunofluorescence and immunoprecipitation the recommended concentration is 2 $\mu\text{g/mg}$ of protein lysate.

Note: In order to obtain best results using different techniques and preparations we recommend determining optimal working concentration by titration.

References

1. Fawcett, J., et al., Molecular cloning of ICAM-3, a third ligand for LFA-1, constitutively expressed on resting leukocytes. *Nature*, **360**, 481-484 (1992).
2. Simmons, D. L., The role of ICAM expression in immunity and disease. *Cancer Surv.*, **24**, 141-155 (1995).
3. Silleloux, E. J., DC-SIGN; a related gene, DC-SIGNR; and CD23 form a cluster on 19p13. *J. Immunol.*, **165**, 2937–2942 (2000).
4. Geijtenbeek, T. B., et al., Identification of DC-SIGN, a novel dendritic cell-specific ICAM-3 receptor that supports primary immune responses. *Cell*, **100**, 575-585 (2000).
5. Diderik, A., et al., DC-SIGN and LFA-1: a battle for ligand. *Trends in Immunology*, **22**, 457–463 (2001).

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