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Monoclonal Antibody to CD20 - FITC

Alternate names: B-cell marker, B-lymphocyte antigen CD20, B-lymphocyte surface antigen B1, Bp35, Leu-16, MS4A1, Membrane-spanning 4-domains subfamily A member 1

Catalog No.: SM3140F

Quantity: 100 Tests

Background: CD20 is a cell surface 33-37 (depending on the degree of phosphorylation) kDa non-glycosylated surface phosphoprotein expressed on mature and most malignant B cells, but not stem cells or plasma cells (low number of the CD20 has been also detected on a subpopulation of T lymphocytes and it can be expressed on follicular dendritic cells). Its expression on B cells is synchronous with the expression of surface IgM. CD20 regulates transmembrane calcium conductance (probably functioning as a component of store-operated calcium channel), cell cycle progression and B-cell proliferation. It is associated with lipid rafts, but the intensity of this association depends on extracellular triggering, employing CD20 conformational change and/or BCR (B cell antigen receptor) aggregation. After the receptor ligation, BCR and CD20 colocalize and then rapidly dissociate before BCR endocytosis, whereas CD20 remains at the cell surface. CD20 serves as a useful target for antibody-mediated therapeutic depletion of B cells, as it is expressed at high levels on most B-cell malignancies, but does not become internalized or shed from the plasma membrane following mAb treatment.

Uniprot ID: P11836

NCBI: NP_068769.2

GeneID: 931

Host / Isotype: Mouse / IgG2a

Clone: LT20

Immunogen: Normal human lymphocytes from lymph node

Format:
State: Liquid purified Ig fraction
Buffer System: Phosphate buffered saline (PBS) containing 0,05% Sodium Azide and 0.2% (w/v) high-grade protease free BSA as a stabilizing agent.
Label: FITC – Fluorescein isothiocyanate

Applications: Flow Cytometry analysis of Human blood cells using 20 µl reagent/100 µl of whole blood or 10e6 cells in a suspension.
Other applications not tested. Optimal dilutions are dependent on conditions and should be determined by the user.

Specificity: Reacts with CD20 (Bp35), a 33-37 kDa non-glycosylated membrane receptor with four transmembrane domains, expressed on B lymphocytes (it is lost on plasma cells), follicular dendritic cells, and at low levels on peripheral blood T lymphocytes.
Species: Human.
Other species not tested.

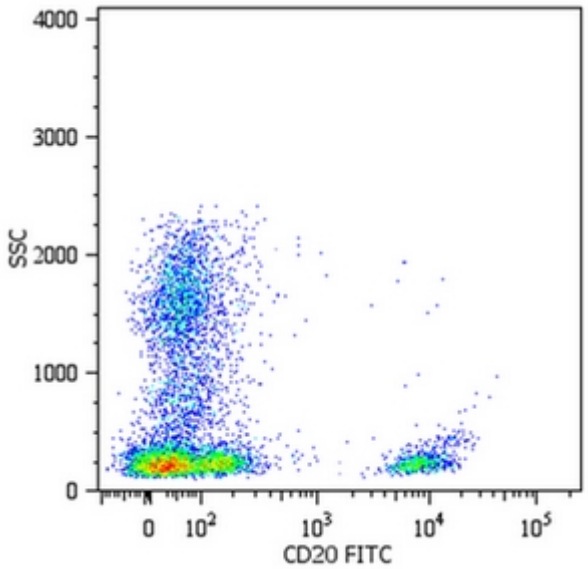
Add. Information: The reagent is free of unconjugated FITC and adjusted for direct use.

Storage: Store the antibody undiluted at 2-8°C.
DO NOT FREEZE!
This product is photosensitive and should be protected from light.
Shelf life: one year from despatch.

General References:

1. Hultin LE, Hausner MA, Hultin PM, Giorgi JV: CD20 (pan-B cell) antigen is expressed at a low level on a subpopulation of human T lymphocytes. Cytometry. 1993;14 (2):196-204.
2. Petrie RJ, Deans JP: Colocalization of the B cell receptor and CD20 followed by activation-dependent dissociation in distinct lipid rafts. J Immunol. 2002 Sep 15;169(6):2886-91.
3. Li H, Ayer LM, Polyak MJ, Mutch CM, Petrie RJ, Gauthier L, Shariat N, Hendzel MJ, Shaw AR, Patel KD, Deans JP. The CD20 calcium channel is localized to microvilli and constitutively associated with membrane rafts: antibody binding increases the affinity of the association through an epitope-dependent cross-linking-independent mechanism. J Biol Chem. 2004 May 7;279(19):19893-901.
4. Cragg MS, Walshe CA, Ivanov AO, Glennie MJ: The biology of CD20 and its potential as a target for mAb therapy. Curr Dir Autoimmun. 2005;8:140-74.
5. Glennie MJ, French RR, Cragg MS, Taylor RP: Mechanisms of killing by anti-CD20 monoclonal antibodies. Mol Immunol. 2007 Sep;44(16):3823-37.
6. Leukocyte Typing VII., Mason D. et al. (Eds.), Oxford University Press (2002).
7. Polyak MJ, Deans JP: Alanine-170 and proline-172 are critical determinants for extracellular CD20 epitopes; heterogeneity in the fine specificity of CD20 monoclonal antibodies is defined by additional requirements imposed by both amino acid sequence and quaternary structure. Blood. 2002 May 1;99(9):3256-62.
8. Chan HT, Hughes D, French RR, Tutt AL, Walshe CA, Teeling JL, Glennie MJ, Cragg MS: CD20-induced lymphoma cell death is independent of both caspases and its redistribution into triton X-100 insoluble membrane rafts. Cancer Res. 2003 Sep 1;63(17):5480-9.
9. Teeling JL, Mackus WJ, Wiegman LJ, van den Brakel JH, Beers SA, French RR, van Meerten T, Ebeling S, Vink T, Slootstra JW, Parren PW, Glennie MJ, van de Winkel JG: The biological activity of human CD20 monoclonal antibodies is linked to unique epitopes on CD20. J Immunol. 2006 Jul 1;177(1):362-71.
10. Filatov AV, Krotov GI, Zgoda VG, Volkov Y: Fluorescent immunoprecipitation analysis of cell surface proteins: a methodology compatible with mass-spectrometry. J Immunol Methods. 2007 Jan 30;319(1-2):21-33.

Pictures:



Surface staining of human peripheral blood cells with anti-Human CD20 antibody FITC conjugated (LT20).