

Product Specification Sheet

CD20-RP5L-P, CD20 linear peptide (13 a.a)

□ Cat. # CD20-RP5L-P CD20/MS4A1 linear peptide (QDKLTQWPWKLEg, 13-aa) contains WPXWLE motif SIZE: 100 ug

CD20 is a 33- to 36-kDa transmembrane phosphoprotein involved in the activation, proliferation, and differentiation of B lymphocytes. The amino acid sequence of human CD20 is 297 aa in length, while that of mouse CD20 is 291 aa in length. The predicted amino acid sequence of the CD20 suggests 4 transmembrane-spanning regions with both N and C-termini located in the cytoplasm and 2 extracellular regions: large 44-amino acid loop (aa 142-184), which is the contact site of most anti-CD20 monoclonal antibodies (mAbs) available, including rituximab, and small loop (aa 72-80), which is the contact site of human anti-CD20 mAbs. The sequence of the CD20 protein indicates that this molecule is tightly bound to the cell surface membrane.

CD20 appears ideal as a target for unconjugated mAbs. It is highly expressed in the plasma membrane of almost all B cells, but not hematological stem cells; it normally remains at the cell surface even after cross-linking with mAbs; and it is not shed from the surface to block binding by mAbs. Significant levels of circulating CD20 (cCD20) can be detected in the plasma of patients with chronic lymphocytic leukemia (CLL).

The mouse/human chimeric CD20 mAb rituximab was the first cancer therapeutic mAb to be given Food and Drug Administration (FDA) approval and since then has become the most important new treatment for B cell malignancies in the last decade. Rituximab is now fully integrated into the management of non-Hodgkin's lymphoma patients, with most receiving mAb either as a single agent or more often given in combination with chemotherapy. It is also producing encouraging results when combined with chemotherapy in the treatment of chronic lymphocytic leukemia (CLL), particularly in patients without prior therapy. Rituximab is furthermore finding use in autoimmune diseases, such as rheumatoid arthritis, where it has been shown to markedly improve symptoms and has recently been approved by the FDA for patients with moderate to advanced disease. Two amino acid sequences of the CD20 antigen, ANPS and YCYSI at positions 170 to 173 and 182 to 185, were recently determined to be the critical binding sites for rituximab.

The linear peptide CD20-RP5L-P (QDKLTQWPWKLEg) contains the motif (WPXWLE) which could not be aligned with any portion of the extracellular loop of CD20, though this peptide reacted with rituximab and efficiently inhibited rituximab binding to Raji cells. Its contact site is within the rituximab antigen-combining site and spatially related, if not identical, to that of the cyclic S-S peptides. The lack of sharing of amino acid sequences between this linear peptide and the conformational CD20 epitope paralleled similar observations regarding the ability of peptides to resemble or mimic an antigen. Rp5L mimics the raft-associated form of CD20 (by inhibiting rituximab binding to CD20 in vitro). Rp5L elicit, in immunized mice, anti-CD20 Abs that stain CD20+ cells with a punctate pattern similar to that of rituximab. Anti-Rp5L Abs recognize denatured CD20. Rp5L did not react with mAbs B1, LT20, and 2H7.

Specificity

The peptide CD20-RP5L-P contains the motif (WPXWLE) which mimics a conformational CD20 epitope.

Sources of Peptides

Cat. # CD20-RP5L-P
Sequence: QDKLTQWPWKLEg
Mol. Wt: 1629
Formula: C₇₆H₁₁₃N₁₉O₂₁
Form: Powder/Soln.
Storage: Store powder at -20°C for up to 6 months.

After reconstitution in water, store solution in small aliquots at -20°C for 3-6 months. Do not freeze and thaw or store diluted solutions.

General References: Teeling J. L. et al. (2006) J. Immunol., 177, 362-371; Roberts W. K. et al. (2002) Blood, 99, 3748-3755; Binder M. et al. (2006) Blood, 108, 1975-1978; Polyak M. J., and Deans J. P. (2002) Blood, 99, 3256-3262; Perosa F. et al. (2006) Blood, 107, 1070-1077; Perosa F. et al. (2009) J. Immunol., 182: 416-423.

Related items

Catalog#	ProdDescription
CD20-141-R	Recombinant Human CD20/MS4A1-mFc fusion Protein (141-184, 44-aa, ECD, rituximab-binding peptide)
CD20-142-P	Human CD20/MS4A1 linear peptide (142-184, 43-aa, extracellular domain) rituximab-binding peptide, >95% pure
CD20-145-R	Recombinant (HEK cells) purified human CD20/MS4A1 (213-297 aa) his tag Protein
CD20-146-R	Recombinant (HEK cells) human CD20/MS4A1 (141-184 aa) hFc- fusion Protein
CD20-147-R	Recombinant (HEK cells) purified Ferrret CD20/MS4A1 (213-297 aa) his tag Protein
CD20-165-P	human CD20/MS4A1 linear peptide (165-184, 20-aa, extracellular domain) broad reactivity with CD20-specific antibodies
CD20-1731-P	Human CD20/MS4A1 peptide (Acetyl-cPYaNPSLc, 9-aa, Cyclic Cys1-Cys9); contains ANPS motif and reactivity with Rituximab
CD20-1732-P	Human CD20/MS4A1 cyclic peptide (Acetyl-cWAANPSMAc, 11 aa, Cys1-Cys11); contains the ANPS motif and avidity for rituximab
CD20-1733-P	Human CD20/MS4A1 cyclic peptide (Acetyl-cPYsNPSLc; 9aa, Cys1-Cys9; contains NPS motif and react with rituximab
CD20-182-P	Human CD20/MS4A1 linear peptide (CWWEWTIGC, 9-aa) contains motif WEWTI of human CD-20 for rituximab
CD20-21-M	Monoclonal Anti-Human CD20/MS4A1 peptide (EC-domain, rituximab binding) ascites
CD20-22-A	Anti-Human CD20/MS4A1 peptide (EC-domain, rituximab binding domain) IgG, aff pure
CD20-22-P	Anti-Human CD20/MS4A1 control/blocking peptide (EC-domain, rituximab binding domain)
CD20-23-M	Humanized (chimeric) Anti-Human CD20/MS4A1 IgG (rituximab biosimilar), pure
CD20F-100	Anti-Human CD20-FITC conjugate
CD20P-100	Anti-Human CD20-PE conjugate
CD20PC-100	Anti-Human CD20-PE-Cy5-conjugate
CD20-RP1L-P	CD20/MS4A1 linear peptide (WPRWLEN, 7-aa) contains motif WPXWLE, 6-aa; Rp1L-1) and reacts with rituximab
CD20-RP5L-P	CD20/MS4A1 linear peptide (QDKLTQWPWKLEg, 13-aa) contains WPXWLE motif and reacts with rituximab
CD20UL-100	Anti-Human CD20 IgG, Unlabeled

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