



## Product Specification Sheet

### CD20-142-P, human CD20 large extracellular loop peptide (142-184, 43 a.a)

□ Cat. # CD20-142-P Human CD20/MS4A1 linear peptide (142-184aa) rituximab-binding peptide 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.

Human CD20 large extracellular loop peptide (hCD20, KISHFLKMESLNFIRAHTPYINIYNCEPANPSEKNSPSTQYCY, aa 142-184) displayed reactivity with mAbs rituximab, B1, 2H7, 1F5, CAT 13.6E12, L27, LT20. The mice vaccinated with the Cys-hCD20 construct generated antibodies against the N- and C-terminal halves of hCD20, and, although they do cross-react to recognize the full-length mouse CD20 peptide (aa 135-178), they do not recognize either half separately in ELISA.

#### Specificity

Human CD20 peptide is 100% conserved in human CD20, 70% conserved in dog CD20 and 65% conserved in mouse CD20.

#### Sources of Peptides

Cat. # CD20-142-P  
 Sequence: KISHFLKMESLNFIRAHTPYINIYNCEPANPSEKNSPSTQYCY  
 Mol. Wt: 5051  
 Formula: C<sub>226</sub>H<sub>339</sub>N<sub>59</sub>O<sub>67</sub>S<sub>3</sub>  
 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.

In vitro research use only

#### 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-cPYaNP SLc, 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-cPYsNP SLc; 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 (QDKLTQWP KWLEg, 13-aa) contains WPXWLE motif and reacts with rituximab
CD20UL-100	Anti-Human CD20 IgG, Unlabeled
CD20-142-P	130130A