



Product Specification Sheet

**Human CD20 (MS4A1) Antibodies and controls**

<input type="checkbox"/> Cat. # CD20-22-A	Rabbit Anti-Human CD20/MS4A1 peptide (EC-domain, rituximab binding domain) IgG, aff pure	<b>SIZE:</b> 100 ul
<input type="checkbox"/> Cat. # CD20-22-P	Human CD20/MS4A1 peptide (EC-domain, rituximab binding domain) control peptide	<b>SIZE:</b> 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.

**Source of Antigen and Antibodies**

<b>Antigen</b>	43-aa peptide from human CD20 ECD domain (1); Designation (#CD20-22-P), control or blocking peptide) conjugated to KLH; epitope location ~ extracellular
<b>Ab Host/type</b>	Rabbit, Polyclonal unpurified antiserum) and IgG, purified over antigen-agarose (#CD20-22-A)
<b>2-Ab</b>	Cat # 20320, goat anti-rabbit IgG-HRP (AP, biotin, FITC conjugates also available).
<b>-ve control IgG</b>	# 20009-1, Rabbit (non-immune) IgG, purified, suitable for ELISA, Western, IHC as -ve control

**Form & Storage of Antibodies/Peptide Control**

**Affinity pure IgG**  
 100 ug/100ul     solution     lyophilized powder

Supplied in **Buffer:** PBS+0.1% BSA  
**Reconstitute powder** in PBS at 1mg/ml

**Control/blocking peptide**  
 100 ug/100 ul     solution     lyophilized powder  
 Supplied in **Buffer:** PBS pH 7.5,  
**Reconstitute powder in PBS at 1 mg/ml.**

**Storage**  
**Short-term:** unopened, undiluted liquid vials at -20OC and powder at 4oC or -20oC..

**Long-term:** at -20C or below in suitable aliquots after reconstitution. Do not freeze and thaw and store working, diluted solutions.

**Stability:** 6-12 months at -20oC or below.  
**Shipping:** 4oC for solutions and room temp for powder

**Recommended Usage**

**Western Blotting** (1:500-1:2000) for aff. pure IgG using ECL technique).

**ELISA** (1:1000:1:10,000K; using 50-100 ng control peptide/well).

**Histochemistry & Immunofluorescence:** Not tested

**Specificity**

The epitope of anti-human CD20-21-M represent a portion of the extracellular domain. This peptide is 100% conserved in human, chimp, monkey, baboon, mouse, hamster (87%), Ferret, rabbit, canine (80%) CD20 ECDs. Antibody crossreactivity in various species is not established. Recombinant mouse and human CD20 proteins (CD20-14-R and CD20-146-R) and peptide (CD20-165-P) can be used as controls for Western or ELISA.

**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.

*\*This product is for In vitro research use only.*

**Related Items**

Catalog#	ProdDescription
200-210-RAG	Rituximab/Rituxan/Anti-CD20 (Active) ELISA Kit
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 Ferret 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-

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