HLA-DPB1 Antibody (Center) Blocking Peptide

PRODUCT OVERVIEW

Product Name	HLA-DPB1, Blocking Peptide
Full Product Name	HLA-DPB1 Antibody (Center) Blocking peptide
Product Gene Name	HLA-DPB1 blocking peptide
Product Synonym Gene Name	HLA-DP1B
Product Synonym Names	HLA class II histocompatibility antigen; DP beta 1 chain; HLA class II histocompatibility antigen; DP(W4) beta chain; MHC class II antigen DPB1; HLA-DPB1; HLA-DP1B
Form/Format	Synthetic peptide was lyophilized with 100% acetonitrile and is supplied as a powder. Reconstitute with 0.1 ml DI water for a final concentration of 1 mg/ml.
Specificity	The synthetic peptide sequence used to generate the antibody was selected from the Center region of HLA-DPB1. A 10 to 100 fold molar excess to antibody is recommended. Precise conditions should be optimized for a particular assay.
Preparation and Storage	Maintain refrigerated at 2-8 degree C for up to 6 months. For long term storage store at -20 degree C.
Antibody/Peptide Pairs	HLA-DPB1 peptide (MBS9220233) is used for blocking the activity of HLA-DPB1 antibody (MBS9211246)
Molecular Weight	29,159 Da
OMIM	142858
Cellular Location	Cell membrane; Single-pass type I membrane protein. Endoplasmic reticulum membrane; Single-pass type I membrane protein. Golgi apparatus, trans-Golgi network membrane; Single-pass type I membrane protein. Endosome membrane; Single- pass type I membrane protein. Lysosome membrane; Single-pass type I membrane protein. Note: The MHC class II complex transits through a number of intracellular compartments in the endocytic pathway until it reaches the cell membrane for antigen presentation
Related Product Information for HLA-DPB1 blocking peptide	Binds peptides derived from antigens that access the endocytic route of antigen presenting cells (APC) and presents them on the cell surface for recognition by the CD4 T-cells. The peptide binding cleft accommodates peptides of 10-30 residues. The peptides presented by MHC class II molecules are generated mostly by degradation of proteins that access the endocytic route, where they are processed by lysosomal proteases and other hydrolases. Exogenous antigens that have been endocytosed by the APC are thus readily available for presentation via MHC II molecules, and for this reason this antigen presentation pathway is usually referred to as exogenous. As membrane proteins on their way to degradation in lysosomes as part of their normal turn-over are also contained in the endosomal/lysosomal compartments, exogenous antigens must compete with those derived from endogenous components. Autophagy is also a source of endogenous peptides, autophagosomes constitutively fuse with MHC class II loading compartments. In addition to APCs, other cells of the gastrointestinal tract, such as epithelial cells, express MHC class II molecules and CD74 and act as APCs, which is an unusual trait of the GI tract. To produce a MHC class II molecule that presents an antigen, three MHC class II molecules (heterodimers of an alpha and a beta chain) associate with a CD74 trimer in the ER to form a heterononamer. Soon after the entry of this complex into the endosomal/lysosomal system where antigen processing occurs, CD74 undergoes a sequential degradation by various proteases, including CTSS and CTSL, leaving a small fragment termed CLIP (class-II-associated invariant chain peptide). The removal of CLIP is facilitated by HLA-DM via direct binding to the alpha-beta-CLIP complex so that CLIP is released. HLA-DM stabilizes MHC class II molecules until primary high affinity antigenic peptides are bound. The MHC II molecule bound to a peptide is then transported to the cell membrane surface. In B-cells, the interaction between HLA-DM and MHC class II molecules is regulated by HLA-DO. Primary dendritic cells (DCs) also to express HLA-DO. Lysosomal microenvironment has been implicated in the regulation of antigen loading into MHC II molecules, increased acidification produces increased proteolysis and efficient peptide loading.
Other Notes	Small volumes of HLA-DPB1 blocking peptide vial(s) may occasionally become entrapped in the seal of the product vial during shipment and storage. If necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the container`s cap. Certain products may require to ship with dry ice and additional dry ice fee may apply.

Searchable Terms for HLA-DPB1 purchase	MBS9220233 is a blocking peptide targeting HLA-DPB1. Also known as HLA-DPB1 Antibody (Center) Blocking peptide.

ADDITIONAL DETAILS

NCBI/Uniprot data below describe general gene information for HLA-DPB1. It may not necessarily be applicable to this product.

NCBI GI #	122263
NCBI GeneID	3115
NCBI Accession #	P04440.1
UniProt Primary Accession #	P04440
UniProt Secondary Accession #	A0PFJ7; A5I886; A8YPB3; B5U8B4; B7VF80; B7VF87; B8ZX68; B8ZYT0; B9W5S8; B9W6F7; B9W6F9
UniProt Related Accession #	P04440
NCBI Official Full Name	HLA class II histocompatibility antigen, DP beta 1 chain
NCBI Official Synonym Full Names	major histocompatibility complex, class II, DP beta 1
NCBI Official Symbol	HLA-DPB1
NCBI Official Synonym Symbols	DPB1; HLA-DP; HLA-DPB; HLA-DP1B
UniProt Protein Name	HLA class II histocompatibility antigen, DP beta 1 chain
UniProt Synonym Protein Names	HLA class II histocompatibility antigen, DP(W4) beta chain; MHC class II antigen DPB1
Protein Family	HLA class II histocompatibility antigen
UniProt Gene Name	HLA-DPB1
UniProt Synonym Gene Names	HLA-DP1B
UniProt Entry Name	DPB1_HUMAN
NCBI Protein Information	HLA class II histocompatibility antigen, DP beta 1 chain
NCBI Summary for HLA-DPB1	HLA-DPB belongs to the HLA class II beta chain paralogues. This class II molecule is a heterodimer consisting of an alpha (DPA) and a beta chain (DPB), both anchored in the membrane. It plays a central role in the immune system by presenting peptides derived from extracellular proteins. Class II molecules are expressed in antigen presenting cells (APC: B lymphocytes, dendritic cells, macrophages). The beta chain is approximately 26-28 kDa and its gene contains 6 exons. Exon one encodes the leader peptide, exons 2 and 3 encode the two extracellular domains, exon 4 encodes the transmembrane domain and exon 5 encodes the cytoplasmic tail. Within the DP molecule both the alpha chain and the beta chain contain the polymorphisms specifying the peptide binding specificities, resulting in up to 4 different molecules. [provided by RefSeq, Jul 2008]

UniProt Comments for HLA-DPB1	HLA-DPB1: Binds peptides derived from antigens that access the endocytic route of antigen presenting cells (APC) and presents them on the cell surface for recognition by the CD4 T-cells. The peptide binding cleft accommodates peptides of 10-30 residues. The peptides presented by MHC class II molecules are generated mostly by degradation of proteins that access the endocytic route, where they are processed by lysosomal proteases and other hydrolases. Exogenous antigens that have been endocytosed by the APC are thus readily available for presentation via MHC II molecules, and for this reason this antigen presentation pathway is usually referred to as exogenous. As membrane proteins on their way to degradation in lysosomes as part of their normal turn-over are also contained in the endosomal/lysosomal compartments, exogenous antigens must compete with those derived from endogenous components. Autophagy is also a source of endogenous peptides, autophagosomes constitutively fuse with MHC class II loading compartments. In addition to APCs, other cells of the gastrointestinal tract, such as epithelial cells, express MHC class II molecules and CD74 and act as APCs, which is an unusual trait of the GI tract. To produce a MHC class II molecule that presents an antigen, three MHC class II molecules (heterodimers of an alpha and a beta chain) associate with a CD74 trimer in the ER to form a heterononamer. Soon after the entry of this complex into the endosomal/lysosomal system where antigen processing occurs, CD74 undergoes a sequential degradation by various proteases, including CTSS and CTSL, leaving a small fragment termed CLIP (class-II-associated invariant chain peptide). The removal of CLIP is facilitated by HLA-DM via direct binding to the alpha-beta-CLIP complex so that CLIP is released. HLA-DM stabilizes MHC class II molecules until primary high affinity antigenic peptides are bound. The MHC II molecule bound to a peptide is then transported to the cell membrane surface. In B-cells, the interaction between HLA-DM and MHC class II molecules is regulated by HLA-DO. Primary dendritic cells (DCs) also to express HLA-DO. Lysosomal miroenvironment has been implicated in the regulation of antigen loading into MHC II molecules, increased acidification produces increased proteolysis and efficient peptide loading. Belongs to the MHC class II family. Protein type: Membrane protein, integral Chromosomal Location of Human Ortholog: 6p21.3 Cellular Component: cell surface; Golgi membrane; lysosomal membrane; membrane; MHC class II protein complex; plasma membrane; trans-Golgi network membrane Molecular Function: peptide antigen binding Biological Process: antigen processing and presentation of exogenous peptide antigen via MHC class II; positive regulation of interferon-gamma production; positive regulation of T cell activation; positive regulation of T cell proliferation; T cell costimulation; T cell receptor signaling pathway
Research Articles on HLA-DPB1	**1.** Thyroid autoimmunity is highly prevalent in type 1 diabetes mellitus patients and the risk is modulated by HLA-DRB1 and HLA-DPB1 loci.
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