

HLA-DPA1 Protein, Human (His)

Cat. No.:	HY-P71697
Synonyms:	HLA-DPA1; HLA-DP1A; HLABHLA class II histocompatibility antigen; DP alpha 1 chain; HLA-SB alpha chain; MHC class II DP3-alpha; MHC class II DPA1
Species:	Human
Source:	E. coli
Accession:	P20036 (29A-222E)
Gene ID:	3113
Molecular Weight:	Approximately 26.3 kDa

PROPERTIES

AA Sequence	<p> A G A I K A D H V S T Y A A F V Q T H R P T G E F M F E F D E D E M F Y V D L D K K E T V W H L E E F G Q A F S F E A Q G G L A N I A I L N N N L N T L I Q R S N H T Q A T N D P P E V T V F P K E P V E L G Q P N T L I C H I D K F F P P V L N V T W L C N G E L V T E G V A E S L F L P R T D Y S F H K F H Y L T F V P S A E D F Y D C R V E H W G L D Q P L L K H W E A Q E P I Q M P E T T E </p>
Appearance	Lyophilized powder.
Formulation	Lyophilized after extensive dialysis against solution in Tris-based buffer, 50% glycerol.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconstitution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH ₂ O.
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

DESCRIPTION

Background	<p>The HLA-DPA1 Protein plays a pivotal role in the immune system by binding peptides derived from antigens within the endocytic route of antigen-presenting cells (APCs) and presenting them on the cell surface for recognition by CD4 T-cells. The peptide binding cleft of HLA-DPA1 accommodates peptides ranging from 10 to 30 residues, predominantly generated through the degradation of proteins accessing the endocytic route. This exogenous antigen presentation pathway involves lysosomal proteases and other hydrolases processing antigens taken up by APCs. Notably, cells of the gastrointestinal tract, including epithelial cells, express MHC class II molecules and CD74, acting as unconventional APCs. The assembly of a functional MHC class II molecule involves the association of three MHC class II molecules with a CD74 trimer in the endoplasmic reticulum (ER), forming a heteronamer. Upon entering the endosomal/lysosomal system, CD74 undergoes</p>
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sequential degradation, leaving a fragment known as CLIP on each MHC class II molecule. HLA-DM facilitates CLIP removal, stabilizing MHC class II until high-affinity antigenic peptides bind. HLA-DO regulates the interaction between HLA-DM and MHC class II in B-cells, and lysosomal acidification influences efficient peptide loading. The MHC class II molecule, bound to a peptide, is then transported to the cell membrane surface for immune recognition.

Caution: Product has not been fully validated for medical applications. For research use only.

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