10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

MR1 Antibody (C-term) Blocking Peptide
Synthetic peptide
Catalog # BP17332b

Specification

MR1 Antibody (C-term) Blocking Peptide - Product Information

Primary Accession Q95460

MR1 Antibody (C-term) Blocking Peptide - Additional Information

Gene ID 3140

Other Names
Major histocompatibility complex class I-related gene protein, MHC class I-related gene protein, Class I histocompatibility antigen-like protein, MR1

Format
Peptides are lyophilized in a solid powder format. Peptides can be reconstituted in solution using the appropriate buffer as needed.

Storage
Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C.

Precautions
This product is for research use only. Not for use in diagnostic or therapeutic procedures.

MR1 Antibody (C-term) Blocking Peptide - Protein Information

Name MR1

Function
Antigen-presenting molecule specialized in displaying microbial pyrimidine-based metabolites to alpha-beta T cell receptors (TCR) on innate-type mucosal-associated invariant T (MAIT) cells (PubMed:23051753, PubMed:26795251, PubMed:12794138, PubMed:19416870, PubMed:22692454, PubMed:23846752). In complex with B2M preferentially presents riboflavin-derived metabolites to semi-invariant TRAV1-2 TCRs on MAIT cells, guiding immune surveillance of the microbial metabolome at mucosal epithelial barriers (PubMed:26795251, PubMed:24695216, PubMed:20581831). Signature pyrimidine-based microbial antigens are generated via non-enzymatic condensation of metabolite intermediates of the riboflavin pathway with by-products arising from other metabolic pathways such as glycolysis. Typical potent antigenic metabolites are 5-(2-oxoethylideneamino)-6-D-ribitylaminouracil (5-OE-RU) and 5-(2-

oxopropylideneamino)-6-D-ribitylaminouracil (5-OP-RU), products of condensation of 5-amino-6-D-ribityaminouracil (5-A-RU) with glyoxal or methylglyoxal by-products, respectively (PubMed:24695216). May present microbial antigens to various TRAV1-2-negative MAIT cell subsets, providing for unique recognition of diverse microbes, including pathogens that do not synthesize riboflavin (PubMed:27527800, PubMed:31113973). Upon antigen recognition, elicits rapid innate-type MAIT cell activation to eliminate pathogenic microbes by directly killing infected cells (PubMed:24695216, PubMed:27527800, PubMed:23846752). During T cell development, drives thymic selection and post-thymic terminal differentiation of MAIT cells in a process dependent on commensal microflora (By similarity). Acts as an immune sensor of cancer cell metabolome (PubMed:31959982). May present a tumor-specific or -associated metabolite essential for cancer cell survival to a pan-cancer TCR consisting of TRAV38.2-DV8*TRAJ31 alpha chain paired with a TRBV25.1*TRBJ2.3 beta chain on a non-MAIT CD8- positive T cell clone (MC.7.G5), triggering T cell-mediated killing of a wide range of cancer cell types (PubMed:31959982).

Cellular Location
Cell membrane; Single-pass type I membrane protein. Endoplasmic reticulum membrane; Single-pass type I membrane protein. Golgi apparatus membrane; Single-pass type I membrane protein. Early endosome membrane; Single-pass type I membrane protein. Late endosome membrane; Single-pass type I membrane protein. Note=In the absence of antigen remains within the endoplasmic reticulum where it acts as a metabolite sensor. Antigen binding triggers trafficking of the ternary complex to the plasma membrane. After presentation, most of these complexes are rapidly internalized and degraded via endocytosis. A small subset recycles via endosomes back to the plasma membrane and may thus acquire and present new antigens that do not efficiently reach the endoplasmic reticulum. [Isoform 3]: Cell membrane; Single-pass type I membrane protein. Endoplasmic reticulum membrane; Single-pass membrane protein. Note=The larger proportion remains in the ER in an immature state. The subset that reach cell surface does it through a B2M-independent pathway.

Tissue Location
Ubiquitous (PubMed:7624800, PubMed:9780177). Low expression is detected in peripheral blood B cells, T cells, monocytes and in bronchial epithelial cells (at protein level) (PubMed:27043408) Expressed in plasmablasts or plasma B cells in the lamina propria of ileum, appendix and colon (at protein level) (PubMed:19760593). Highly expressed on a subset of CD45-positive CD3-positive thymocytes (at protein level) (PubMed:22692454).

MR1 Antibody (C-term) Blocking Peptide - Protocols

Provided below are standard protocols that you may find useful for product applications.

- Blocking Peptides

MR1 Antibody (C-term) Blocking Peptide - Images

MR1 Antibody (C-term) Blocking Peptide - Background

MR1 has antigen presentation function. Involved in the development and expansion of a small population of T cells expressing an invariant T cell receptor alpha chain called mucosal-associated invariant T cells (MAIT). MAIT cells are preferentially located in the gut lamina propria and therfore may be involed in monitoring commensal flora or serve as a distress signal. Expression and MAIT cell recognition seem to be ligand-dependent.

10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

MR1 Antibody (C-term) Blocking Peptide - References

Gozalbo-Lopez, B., et al. Histol. Histopathol. 24(11):1439-1449(2009)Stumpf, A.N., et al. Blood 114(17):3684-3692(2009)Huang, S., et al. Proc. Natl. Acad. Sci. U.S.A. 106(20):8290-8295(2009)Aldemir, H. Biochem. Biophys. Res. Commun. 366(2):328-334(2008)Miley, M.J., et al. J. Immunol. 170(12):6090-6098(2003)