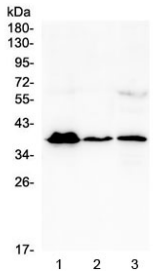
MAIT Cell MR1 Antibody / MR1 Metabolite Antigen Antibody (RQ4943)

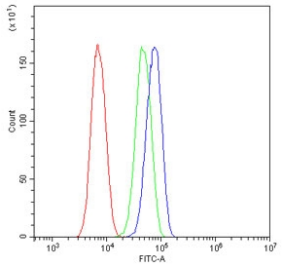
Catalog No.	Formulation	Size
RQ4943	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

Availability	1-3 business days
Species Reactivity	Human
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Antigen affinity purified
Buffer	Lyophilized from 1X PBS with 2% Trehalose and 0.025% sodium azide
UniProt	Q95460
Applications	Western blot: 0.5-1ug/ml Flow Cytometry: 1-3ug/million cells Direct ELISA: 0.1-0.5ug/ml
Limitations	This MAIT Cell MR1 Antibody / MR1 Metabolite Antigen Antibody is available for research use only.



MAIT Cell MR1 Antibody Detection in Human Cancer and Immune Cell Lines WB. Western blot analysis of human T-47D breast cancer (lane 1), U937 histiocytic lymphoma (lane 2) and A431 epidermoid carcinoma (lane 3) cell lysates using MAIT Cell MR1 Antibody at 0.5 ug/ml. A prominent band is detected at approximately 39 kDa across the tested lysates, consistent with the predicted molecular weight of MR1.



MAIT Cell MR1 Antibody Detection in SiHa Cervical Cancer Cells FACS. Flow cytometry analysis of human SiHa cervical cancer cells using MAIT Cell MR1 Antibody at 1 ug/million cells following blocking with goat serum. The antibody-stained population (blue) shows a clear rightward fluorescence shift compared with the isotype control (green) and cells-alone control (red), demonstrating MR1 detection under the tested conditions.

Description

MAIT Cell MR1 Antibody / MR1 Metabolite Antigen Antibody recognizes MR1, a non-classical major histocompatibility complex-related protein specialized for presenting small-molecule antigens. MR1 associates with beta-2-microglobulin and has an antigen-binding groove adapted for metabolites rather than the peptide antigens typically presented by classical MHC class I molecules. This specialized function places MR1 at the center of a distinctive pathway connecting microbial metabolism with cellular immune recognition.

MR1 is particularly important for activation of mucosal-associated invariant T (MAIT) cells. Metabolites generated through microbial vitamin B biosynthetic pathways can bind MR1 and be displayed for recognition by MAIT-cell T cell receptors. Riboflavin pathway-derived metabolites are among the best-characterized MR1 ligands, enabling MAIT cells to detect metabolic signatures produced by many bacteria and fungi.

MR1 surface expression is tightly regulated and closely associated with ligand availability. In the absence of suitable antigen, much of the protein remains within intracellular compartments. Ligand binding stabilizes MR1 and facilitates trafficking of antigen-loaded complexes to the cell surface. This regulated process enables rapid presentation of microbial-derived metabolites while maintaining relatively limited MR1 surface expression under resting conditions.

A MR1 Metabolite Antigen Antibody can support investigation of this unusual form of antigen presentation and its relationship to MAIT cell biology. MR1-MAIT interactions are studied in antimicrobial immunity, mucosal defense and inflammatory responses, as well as emerging areas of tumor immunology. The limited polymorphism of MR1 compared with classical MHC molecules further distinguishes this immune recognition system.

This rabbit polyclonal MAIT Cell MR1 Antibody was generated against amino acids 23-269 of human MR1 and is antigen affinity purified. For a monoclonal reagent targeting MR1, see our MR1 Antibody MR1/7579 / MR1 Antigen Presentation Antibody page. NSJ Bioreagents provides antibodies for research into immune recognition and antigen presentation. A MAIT Cell MR1 Antibody provides a research tool for investigating MR1 expression and its role in metabolite-dependent MAIT cell immunity.

For a monoclonal reagent targeting MR1, see our MR1 Antibody MR1/7579 / MR1 Antigen Presentation Antibody page.

Application Notes

Optimal dilution of the MAIT Cell MR1 Antibody / MR1 Metabolite Antigen Antibody should be determined by the researcher.

Immunogen

Amino acids R23-D269 from the human protein were used as the immunogen for the MAIT Cell MR1 Antibody.

Storage

After reconstitution, the MAIT Cell MR1 Antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

Alternate Names

MR1 antibody, Major histocompatibility complex class I-related protein 1 antibody, MHC class I-related protein 1 antibody, HLALS antibody, MR1 protein antibody

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