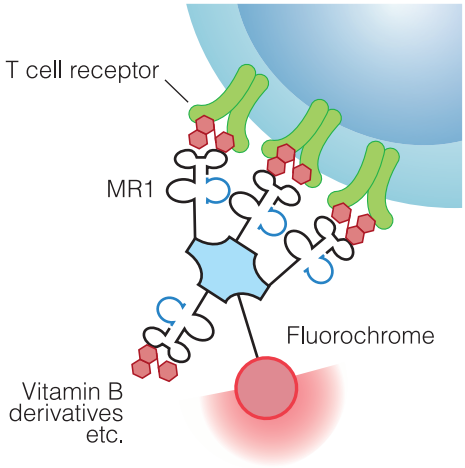
For Research Use Only

MBL
A JSR Life Sciences Company

T-Select
Human MR1 Tetramer v2

- The product is a reagent prepared by tetramerizing biotinylated human MR1/β2m complexes with the help of phycobiliprotein-labeled streptavidin.
- The product does not include the MR1 ligand. You can combine with the MR1 ligand of your interest, and detect MAIT cells by flow cytometry.



What is MR1?

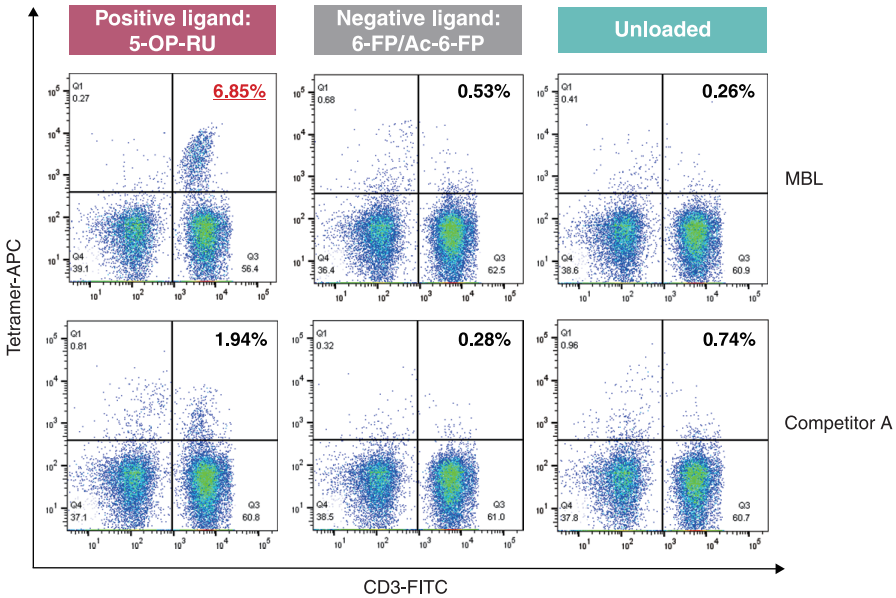
The MHC class I-related protein MR1 is a membrane protein non-covalently bound to β2-microglobulin (β2m), which is known as one of the non-classical MHC class I molecules. It is expressed in almost all cell types of the body. Upon stimulation, for example, during an infection, MR1 molecules associated with microbial vitamin B metabolites migrate to the cell surface to present them to and thereby activate MAIT cells.

What is MAIT cells

MAIT cells have been proposed to act as innate T cells that primarily respond to bacterial and fungal antigens. Recently, MAIT cells were found to be associated with autoimmune diseases. In addition, it has been reported that intestinal bacteria play a role in the development and differentiation of MAIT cells, therefore gaining increasing attention by researchers in the field of intestinal immunity.

Staining comparison of MR1 Tetramer products

Peripheral blood mononuclear cells (PBMCs) from healthy donors were stained with T-Select Human MR1 Tetramer v2-APC loaded with 5-OP-RU or Ac-6-FP, or unloaded. It was compared with staining data using human MR1 tetramer of competitor A loaded with 5-OP-RU or 6-FP, or unloaded.



*Numbers in the upper right quadrants represent the percentages of MR1 Tetramer$^+$ cells relative to the total CD3$^+$ cells.

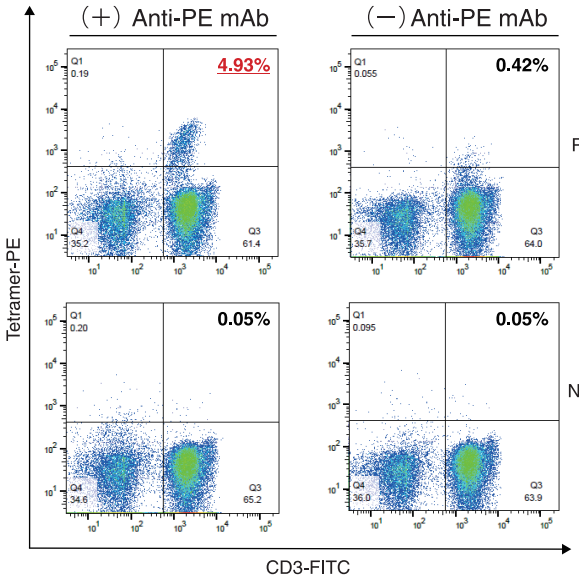
Enhancement reagents for MR1 Tetramer staining

Anti-PE mAb, Anti-APC mAb

Several researchers have evaluated numerous tricks for improving staining intensities using major histocompatibility complex (MHC) multimers. In particular, addition of a protein kinase inhibitor (PKI) and staining with anti-phicobiliprotein antibody are widely used[1].

MBL has developed anti-PE and anti-APC antibodies that can be used in MHC tetramer staining. The enhancement effect in the staining method was evaluated using T-Select Human MR1 Tetramer v2-PE, APC (Code No. TS-HMRV2-1,2). *The degree of enhancement differs depending on the MHC tetramers used.

Evaluation of enhancement using Human MR1 Tetramer



*Numbers in the upper right quadrants represent the percentages of MR1 Tetramer$^+$ cells relative to the total CD3$^+$ cells.

PBMCs from healthy donors were stained with T-Select Human MR1 Tetramer v2-PE (Code No. TS-HMRV2-1) loaded with 5-OP-RU or Ac-6-FP. After Tetramer staining, the PBMCs were incubated with or without Anti-PE mAb followed by staining with anti-CD3 antibody. Thereafter, they were analyzed via flow cytometry.

Only 0.42% of CD3$^+$/tetramer$^+$ cells were detected during MR1 tetramer staining without Anti-PE mAb. In contrast, addition of the antibody highly enhanced the staining intensity (4.93%).

Product list

◆Human MR1 Tetramer

*The product does NOT include the MR1 ligand.

Code No.	Product name	Size
TS-HMRV2-1	T-Select Human MR1 Tetramer v2-PE	50 tests
TS-HMRV2-2	T-Select Human MR1 Tetramer v2-APC	50 tests

◆Enhancement reagents for MHC tetramer staining

Code No.	Product name	Clone	Isotype	Size
M240-3	Anti-PE mAb	C27-6	Mouse IgG2a κ	50 μg/100 μL
M241-3	Anti-APC mAb	29-10	Mouse IgG2b κ	50 μg/100 μL

Reference

1) Tungatt K *et al.*, *J Immunol.* 194, 463-474 (2015)

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Produced by
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Please check our webpage for MR1 Tetramer!