abcam

ab1898

Anti-TCR V beta 5 antibody [MEM-262]

Key facts

Isotype	IgG2a
Host species	Mouse
Storage buffer	pH: 7.4 Preservative: 0.097% Sodium azide Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	Cell preparation containing HPB-ALL cell line protein. The exact immunogen used to generate this antibody is proprietary information.
Clone number	MEM-262
Purification technique	Affinity purification Protein A
Specificity	The antibody recognizes beta chains of the TCR expressed by HPB-ALL cell line [carrying V(beta5.3)] and a small subset of peripheral blood T cells. This subset is larger than that recognized by other V(beta5.3)-specific antibodies.
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	Purified from hybridoma culture supernatant. Purity >95% by SDS-PAGE.

Reactivity data

Flow Cyt

Expected

Species	Human

Dilution info	Use at an assay dependent concentration.
Notes	-

IP

Expected

Species	Human
Dilution info	Use at an assay dependent concentration.
Notes	-

WB

Expected

Species	Human
Dilution info	Use at an assay dependent concentration.
Notes	-

Target data

See full target information TRBV5-1

Function

V region of the variable domain of T cell receptor (TR) beta chain that participates in the antigen recognition (PubMed:24600447). Alpha-beta T cell receptors are antigen specific receptors which are essential to the immune response and are present on the cell surface of T lymphocytes. Recognize peptide-major histocompatibility (MH) (pMH) complexes that are displayed by antigen presenting cells (APC), a prerequisite for efficient T cell adaptive immunity against pathogens (PubMed:25493333). Binding of alpha-beta TR to pMH complex initiates TR-CD3 clustering on the cell surface and intracellular activation of LCK that phosphorylates the ITAM motifs of CD3G, CD3D, CD3E and CD247 enabling the recruitment of ZAP70. In turn ZAP70 phosphorylates LAT, which recruits numerous signaling molecules to form the LAT signalosome. The LAT signalosome propagates signal branching to three major signaling pathways, the calcium, the mitogen-activated protein kinase (MAPK) kinase and the nuclear factor NF-kappa-B (NF-kB) pathways, leading to the mobilization of transcription factors that are critical for gene expression and essential for T cell growth and differentiation (PubMed:23524462). The T cell repertoire is generated in the thymus, by V-(D)-J rearrangement. This repertoire is then shaped by intrathymic selection events to generate a peripheral T cell pool of self-MH restricted, non-autoaggressive T cells. Post-thymic interaction of alpha-beta TR with the pMH complexes shapes TR structural and functional avidity (PubMed:15040585).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Notes

Functional ApplicationActivates T cells (V beta 5-related subset).

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	TCR V beta 5 also known as T-cell receptor V beta 5 is a variable region of the T-cell receptor expressed on the surface of T lymphocytes. It consists of a protein chain that is part of the TCR complex with an approximate mass of around 29 kDa. You can find TCR V beta 5 specifically in T cells which are central components of the adaptive immune system. The expression of TCR V beta 5 allows T cells to recognize and bind to specific antigens presented by the Major Histocompatibility Complex (MHC) molecules on antigen-presenting cells.
Biological function summary	The variable region of the TCR V beta 5 plays a pivotal role in the immune system by contributing to the diversity of antigen recognition. The TCR V beta chain together with TCR alpha forms a heterodimer that is critical for the antigen specificity of T cells. TCR V beta 5 aids in the interaction with peptides bound to MHC molecules and helps to activate T-cell responses. It is an integral part of the TCR-CD3 complex composed of various chains that initiate signaling cascades essential for T-cell activation and function.
Pathways	TCR V beta 5 is involved in the T-cell receptor signaling pathway which is fundamental for T-cell activation differentiation and proliferation. The activation of TCR signaling involves key proteins like ZAP-70 and LAT that help propagate the signal downstream to initiate cellular responses. This pathway concurrently interacts with the MAPK/ERK pathway which further influences cell survival and proliferation. The interactions of these pathways highlight the important involvement of TCR V beta 5 in the adaptive immune response.

Associated diseases and disorders	TCR V beta 5 relates to autoimmune conditions and oncological disorders. One such autoimmune disease connected to its function includes multiple sclerosis (MS) where an aberrant immune response mediates damage to the central nervous system. Additionally certain leukemias notably T-cell acute lymphoblastic leukemia show aberrant expression profiles of TCR components like TCR V beta 5. Relationships with proteins such as Lck and Fyn which are involved in signaling from the T-cell receptor highlight the implications of dysregulated TCR V beta 5 activity in these diseases.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

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Terms & Conditions.

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