abcam

ab5465

Anti-T Cell Receptor antibody [JOVI.1]

Key facts

Isotype	IgG2a
Host species	Mouse
Storage buffer	Preservative: 0.02% Sodium azide Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	Cell preparation containing TRBC1 protein. The exact immunogen used to generate this antibody is proprietary information. Database link P01850
Clone number	JOVI.1
Purification technique	Affinity purification Protein A
Specificity	Specific to the C beta 1 chain
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Expected

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

Flow Cyt

Expected

Species	Human
Dilution info	-
Notes	ab170191 - Mouse monoclonal IgG2a, is suitable for use as an isotype control with this antibody.

IHC-Fr

Expected

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

Target data

See full target information TRBC1

Function

Constant region of T cell receptor (TR) beta chain (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, PubMed:9382891). 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

Supplementary info

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

Activity summary	The T Cell Receptor (TCR) functions as an important part of the immune system by recognizing antigens bound to major histocompatibility complex (MHC) molecules. Commonly known as TCR this receptor is a heterodimeric protein generally composed of two transmembrane regions: the Alpha (α) and Beta (β) chains with each chain possessing a variable and constant region. The mass of the α β heterodimeric TCR approximates 75 kDa. TCRs are highly expressed on the surface of T cells which are integral components of adaptive immunity.
Biological function summary	The TCR enables T cells to identify and respond to specific pathogens supporting cell-mediated immune responses. It operates as a part of the extensive TCR complex which includes the CD3 co-receptor molecules. These co-receptors stabilize TCRs on the cell surface and help facilitate signal transduction. The antigen recognition by the TCR leads to the activation of T cells serving as an important step in the immune response.
Pathways	The TCR is central to initiating the T cell receptor signaling pathway and plays significant roles in the adaptive immune system pathway. Upon interaction with antigen-presenting cells the TCR forms a synapse leading to the activation and recruitment of kinases such as LCK and ZAP-70. These kinases are important for downstream signaling events which further lead to T cell proliferation and cytokine production.
Associated diseases and disorders	The TCR has links to autoimmune diseases such as rheumatoid arthritis and certain cancers like T-cell leukemia. In these conditions improper TCR signaling or misrecognition of self-antigens can contribute to disease pathogenesis. Misregulated TCR activity can also engage with proteins like CTLA-4 and PD-1 now targeted by immunotherapy offering novel treatment avenues to modulate T cell responses.

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.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.