abcam

ab150440

Anti-T-bet / Tbx21 antibody [EPR9301]

Recombinant | RabMAb

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	Preservative: 0.01% Sodium azide Constituents: 59% PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EPR9301
Purification technique	Affinity purification Protein A
Concentration	1.402 - 1.443 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	1/1000
Notes	**For unpurified use at 1/250-1/500.** Perform heat-mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.

Not recommended

Species	Mouse
Dilution info	-
Notes	**For unpurified use at 1/250-1/500.** Perform heat-mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.

WB

Not recommended

Species	Human, Mouse
Dilution info	-
Notes	-

Flow Cyt (Intra)

Not recommended

Species	Human, Mouse
Dilution info	-
Notes	-

Target data

See full target information TBX21

Function

Lineage-defining transcription factor which initiates Th1 lineage development from naive Th precursor cells both by activating Th1 genetic programs and by repressing the opposing Th2 and Th17 genetic programs (PubMed:10761931). Activates transcription of a set of genes important for Th1 cell function, including those encoding IFN-gamma and the chemokine receptor CXCR3. Induces permissive chromatin accessibilty and CpG methylation in IFNG (PubMed:33296702). Activates IFNG and CXCR3 genes in part by recruiting chromatin remodeling complexes including KDM6B, a SMARCA4-containing SWI/SNF-complex, and an H3K4me2-methyltransferase complex to their promoters and all of these complexes serve to establish a more permissive chromatin state conducive with transcriptional activation (By similarity). Can activate Th1 genes also via recruitment of Mediator complex and P-TEFb (composed of CDK9 and CCNT1/cyclin-T1) in the form of the super elongation complex (SEC) to super-enhancers and associated genes in activated Th1 cells (PubMed:27292648).

Inhibits the Th17 cell lineage commitment by blocking RUNX1-mediated transactivation of Th17 cell-specific transcriptinal regulator RORC. Inhibits the Th2 cell lineage commitment by suppressing the production of Th2 cytokines, such as IL-4, IL-5, and IL- 13, via repression of transcriptional regulators GATA3 and NFATC2. Protects Th1 cells from amplifying aberrant type-I IFN response in an IFN-gamma abundant microenvironment by acting as a repressor of type-I IFN transcription factors and type-I IFN-stimulated genes. Acts as a regulator of antiviral B-cell responses; controls chronic viral infection by promoting the antiviral antibody IgG2a isotype switching and via regulation of a broad antiviral gene expression program (By similarity). Required for the correct development of natural killer (NK) and mucosal-associated invariant T (MAIT) cells (PubMed:33296702).

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

Patented technology
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

What are the advantages of a recombinant monoclonal antibody?
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

Supplementary info

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

Activity summary	T-bet also known as Tbx21 is a T-box transcription factor that plays an important role in regulating immune responses. T-bet has a molecular mass of approximately 58 kDa. It is extensively expressed in T-helper 1 (Th1) cells and natural killer (NK) cells facilitating these cells' development and function. T-bet guides the transcriptional activities necessary for cellular differentiation and immune response by binding to specific DNA sequences. Its expression is tightly controlled reflecting its central role in immune regulation. "9d bet" is also referenced in scientific research although its specific context requires precise understanding within a given study.
Biological function summary	This transcription factor is pivotal for manufacturing interferon-gamma (IFN-γ) initiating and sustaining Th1 cell immunity. T-bet doesn't act alone; it functions as part of larger protein complexes interacting with other transcription factors and cofactors to exert its effects. The capacity to influence IFN-γ production makes T-bet a significant player in immune responses helping coordinate responses against intracellular pathogens. Moreover the expression of T-bet is not limited solely to T cells but also impacts other immune cells like CD8+ T cells and B cells. Anti-bet or anti-T antibodies frequently target T-bet in research to explore immune system intricacies better.
Pathways	T-bet integrates into the immune signaling network through pathways such as the JAK-STAT pathway and the Th1 differentiation pathway. It activates transcription of the IFNG gene working closely with related proteins like STAT4. T-bet's influence extends as it cooperates with STAT1 enabling a feed-forward loop that amplifies and stabilizes Th1 responses. "Bet t products" could refer to those derived from such transcriptional activation. Additionally T-bet involvement goes beyond transcriptional regulation affecting cytokine transport and secretion processes vital for an effective immune response.
Associated diseases and disorders	Researchers have linked T-bet to autoimmune diseases and infectious diseases. Aberrant expression of T-bet can lead to enhanced Th1 responses intensifying autoimmune conditions such as multiple sclerosis (MS). Its role in diseases connects it with NF-κB pathways and other transcription factors influencing inflammatory processes. Furthermore "anti bet" studies often involve understanding T-bet's role in infectious diseases seeking to manipulate its function to adjust immune responses in chronic infections. Studies targeting its pathways or interactions with disease-specific proteins aim to develop therapeutic strategies turning an element of dysregulation into a novel treatment approach.

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

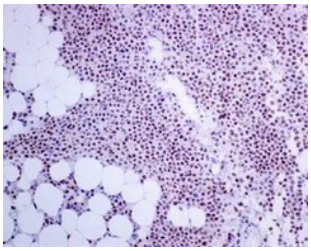
We do not recommend this combination. It is not covered by our product promise.

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.

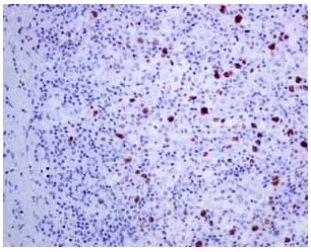
Full details and terms and conditions can be found here:
Terms & Conditions.

6 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-T-bet / Tbx21 antibody [EPR9301] (ab150440)

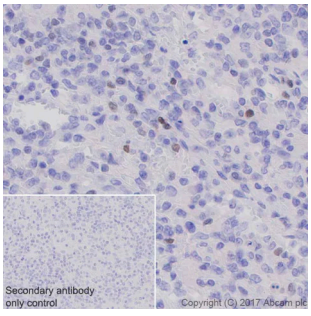
Immunohistochemical analysis of formalin-fixed, paraffin-embedded Human T cell lymphoma tissue labelling T-bet / Tbx21 with unpurified ab150440 at 1/250 dilution.
Perform heat mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-T-bet / Tbx21 antibody [EPR9301] (ab150440)

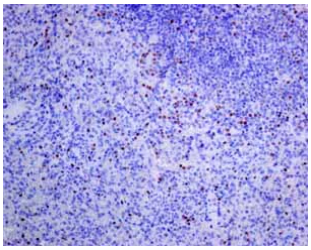
Immunohistochemical analysis of paraffin embedded Human Hodgkin's lymphoma tissue using unpurified ab150440 showing +ve staining.

Perform heat mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-T-bet / Tbx21 antibody [EPR9301] (ab150440)

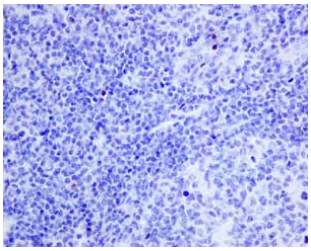
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human Hodgkin lymphoma tissue sections labeling T-bet/Tbx21 with Purified ab150440 at 1:1000 dilution (1.23 µg/ml). Heat mediated antigen retrieval was performed using EDTA Buffer, pH9.0. Tissue was counterstained with Hematoxylin. ImmunoHistoProbe one step HRP Polymer (ready to use) secondary antibody was used at 1:0 dilution. PBS instead of the primary antibody was used as the negative control.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-T-bet / Tbx21 antibody [EPR9301] (ab150440)

Immunohistochemical analysis of paraffin embedded Human Normal spleen tissue using unpurified ab150440 showing +ve staining.

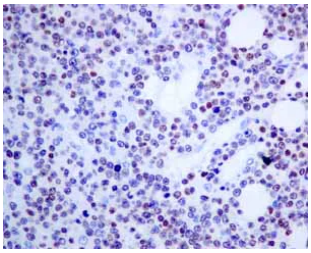
Perform heat mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-T-bet / Tbx21 antibody [EPR9301] (ab150440)

Immunohistochemical analysis of paraffin embedded normal Human tonsil tissue using unpurified ab150440 showing -ve staining.

Perform heat mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-T-bet / Tbx21 antibody [EPR9301] (ab150440)

Immunohistochemical analysis of paraffin embedded Human T cell lymphoma tissue using unpurified ab150440 showing +ve staining.

Perform heat mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.