

Recombinant Human TBX21 Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP50949

Size: 10ug, 100ug

Protein Name: T-box transcription factor TBX21 (T-box protein 21) (T-cell-specific T-box transcription factor T-bet) (Transcription factor TBLYM)

Synonym: TBX21, TBET, TBLYM

UniProt ID: Q9UL17

UniProt Link: www.uniprot.org/uniprotkb/Q9UL17/entry

Species Source: Human

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 535 AA

Molecular Weight: 58 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MGIVEPGCGDMLTGTEPMPGSDEGRAPGADPQHRYFYPEPGAQDADERRGGGSLGSPYPGGALV
PAPPSRFLGAYAYPPRPQAAGFPGAGESFPPPADAEGYQPGEGYAAPDPRAGLYPGPREDYALPA
GLEVSGKLRVALNNHLLWSKFNQHQTEMIITKQGRRMFPLSFTVAGLEPTSHYRMFVDVVLVDQH
HWRYQSGKWWQCGKAEGSMPGNRLYVHPDSPNTGAHWMRQEVSGFKLKLNNKGASNNVTQMI
VLQSLHKYQPR LHIVEVNDGEPEAACNASNTHFTFQETQFIAVTAYQNAEITQLKIDNNPFAKGFREN
FESMYTSVDT SIPSPPGPNCQFLGGDHYSPLLPNQYPVPSRFYDLPGGQAKDVVPQAYWLGAPRD
HSYEAEFRAVSMKPAFLPSAPGPTMSYYRGQEV LAPGAGWPVAPQYPPKMG PASWFRPMTLPM
EPGPGGSEGRGPEDQG PPLVWTEI APIRPESSD SGLGEGDSKRRRVSPYPSSGDSSSPAGAPSPF
DKEAEGQFYNYFPN

3. Buffer Composition

Liquid format: PBS-based buffer containing 50% glycerol. Glycerol concentration can be customized upon customer request; please state special requirements when placing your order.

Lyophilized format: Buffer before lyophilization is PBS supplemented with 6% trehalose.

4. Storage Conditions

Upon receipt, store the product at -20 °C or -80 °C. Aliquot the product for on-demand use to preserve protein activity and prevent denaturation and inactivation caused by repeated freeze-thaw cycles.

5. Product Description

This product is recombinant T-box transcription factor TBX21 (T-box protein 21) (T-cell-specific T-box transcription factor T-bet) (Transcription factor TBLYM) produced using the HEK293T eukaryotic cell expression system. It is suitable for in-vitro functional assays, protein-protein interaction studies, antibody preparation and other biomedical research applications.

Protein 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 accessibility 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 transcriptional 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).

Subcellular Localization: Nucleus .

6. Notes

- Avoid repeated freeze-thaw cycles to maintain protein stability and biological activity.
- Please specify special buffer-composition requirements at the time of order placement.
- For research use only. Not intended for clinical diagnosis, therapeutic use or commercial manufacturing.