

Recombinant Mouse BTK Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP51396

Size: 10ug, 100ug

Protein Name: Tyrosine-protein kinase BTK (EC 2.7.10.2) (Agammaglobulinemia tyrosine kinase) (ATK) (B-cell progenitor kinase) (BPK) (Bruton tyrosine kinase) (Kinase EMB)

Synonym: Btk, Bpk

UniProt ID: P35991

UniProt Link: www.uniprot.org/uniprotkb/P35991/entry

Species Source: Mouse

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 659 AA

Molecular Weight: 76 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MAAVILESIFLKRSQQKKKTSPNFKKRLFLLTVHKLSYYEYDFERGRRGSKKGSIDVEKITCVETVIPE
KNPPPERQIPRRGEESSEMEQISIERFPYPFQVVYDEGPLYVFSPTTEELRKRWIHQLKNVIRYNSDL
VQKYHPCFWIDGQYLCCSQTAKNAMGCQILENRNGSLKPGSSHRKTKKPLPPTPEEDQILKKPLPPE
PTAAPISTTELKKVVALYDYPMPNANDLQLRKGEYFILEESNLPWWRARDKNGQEGYIPSNYITEA
EDSIEMYEWYSKHMTRSQAQQLLKQEGKEGGFIVRDSSKAGKYTVSVFAKSTGEPQGQVIRHYVCS
TPQSQYYLAEKHLFSTIPELINYHQHNSAGLISRLKYPVSKQKNAPSTAGLGYGSWEIDPKDLTFLK
ELGTGQFGVVKYGKWRGQYDVAIKMIREGSMSEDEFIEEAKVMMNLSHEKLVQLYGVCTKQRPIFI
TEYMANGCLLNLYLREMRHRFQTQQLLEMCKDVCEAMEYLESKQFLHRDLAARNCLVNDQGQVVKVS
DFGLSRYVLDDEYTSSVGSKFPVRWSPPEVLMYSKFSSKSDIWAFGVLMWEIYSLGKMPYERFTNS
ETAEHIAQGLRLYRPHLASERVYTIMYSCWHEKADERPSFKILLSNILDVMDEES

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 Tyrosine-protein kinase BTK (EC 2.7.10.2) (Agammaglobulinemia tyrosine kinase) (ATK) (B-cell progenitor kinase) (BPK) (Bruton tyrosine kinase) (Kinase EMB) 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: Non-receptor tyrosine kinase indispensable for B lymphocyte development, differentiation and signaling (PubMed:10852954, PubMed:7538439, PubMed:8629002). Binding of antigen to the B-cell antigen receptor (BCR) triggers signaling that ultimately leads to B-cell activation (By similarity). After BCR engagement and activation at the plasma membrane, phosphorylates PLCG2 at several sites, igniting the downstream signaling pathway through calcium mobilization, followed by activation of the protein kinase C (PKC) family members (By similarity). PLCG2 phosphorylation is performed in close cooperation with the adapter protein B-cell linker protein BLNK (By similarity). BTK acts as a platform to bring together a diverse array of signaling proteins and is implicated in cytokine receptor signaling pathways (By similarity). Plays an important role in the function of immune cells of innate as well as adaptive immunity, as a component of the Toll-like receptors (TLR) pathway (PubMed:17725607). The TLR pathway acts as a primary surveillance system for the detection of pathogens and are crucial to the activation of host defense (By similarity). Especially, is a critical molecule in regulating TLR9 activation in splenic B-cells (By similarity). Within the TLR pathway, induces tyrosine phosphorylation of TIRAP which leads to TIRAP degradation (By similarity). BTK also plays a critical role in transcription regulation (By similarity). Induces the activity of NF-kappa-B, which is involved in regulating the expression of hundreds of genes (By similarity). BTK is involved on the signaling pathway linking TLR8 and TLR9 to NF-kappa-B (By similarity). Acts as an activator of NLRP3 inflammasome assembly by mediating phosphorylation of NLRP3 (PubMed:34554188). Transiently phosphorylates transcription factor GTF2I on tyrosine residues in response to BCR (PubMed:11120822, PubMed:16738337). GTF2I then translocates to the nucleus to bind regulatory enhancer elements to modulate gene expression (PubMed:11120822, PubMed:16738337). ARID3A and NFAT are other transcriptional target of BTK (PubMed:11120822, PubMed:16738337). BTK is required for the formation of functional ARID3A DNA-binding complexes (PubMed:11120822, PubMed:16738337). There is however no evidence that BTK itself binds directly to DNA (PubMed:11120822, PubMed:16738337). BTK has a dual role in the regulation of apoptosis (By similarity). Plays a role in STING1-mediated induction of type I interferon (IFN) response by phosphorylating DDX41 (By similarity).

Subcellular Localization: Cytoplasm . Cell membrane ; Peripheral membrane protein . Nucleus . Membrane raft . Note=In steady state, BTK is predominantly cytosolic. Following B-cell receptor (BCR) engagement by antigen, translocates to the plasma membrane through its PH domain. Plasma membrane localization is a critical step in the activation of BTK. A fraction of BTK also shuttles between the nucleus and the cytoplasm, and nuclear export is mediated by the nuclear export receptor CRM1.

6. Notes

- Avoid repeated freeze-thaw cycles to maintain protein stability and biological activity.



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- 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.