

Recombinant Mouse M3K7 Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP51660

Size: 10ug, 100ug

Protein Name: Mitogen-activated protein kinase kinase kinase 7 (EC 2.7.11.25)
(Transforming growth factor-beta-activated kinase 1) (TGF-beta-activated kinase 1)

Synonym: Map3k7, Tak1

UniProt ID: Q62073

UniProt Link: www.uniprot.org/uniprotkb/Q62073/entry

Species Source: Mouse

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 579 AA

Molecular Weight: 64 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MSTASAASSSSSSSASEMIEAPSQVLNFEEDIDYKEIEVEEVVGRGAFGVVCKAKWRAKDVAIKQIESE
SERKAFIVELRQLSRVNHPIVVKLYGACLNPNVCLVMEYAEGGSLYNVLHGAELPYYYTAAHAMSWCL
QCSQGVAYLHSMQPKALIHRLKPPNLLLAVAGGTVLKICDFGTACDIQTHMTNNKGSAAWMAPEVF
EGSNYSEKCDVFSWGIIWLVITRRKPFDEIGGPAFRIMWAVHNGTRPPLIKNLPKPIESLMTRCWSK
DPSQRPSMEEIVKIMTHLMRYFPGADEPLQYPCQYSDEGQSNSATSTGSFMDIASTNTSNKSDTNM
EQVPATNDTIKRLESKLLKNQAKQQSESGRLSLGASRGSSVESLPPTSEGKRMSADMSEIEARIVAT
AGNGQPRRRSIQDLTVTGTEPGQVSSRSSSPSVRMITTSPTSEKPARSHPWTPDDSTDNTNGSDN
SIPMAYLTLDHQLQPLAPCPNSKESMAVFEQHCKMAQEYMKVQTEIALLLQRKQELVAELDQDEKD
QQNTSRLVQEHHKLLDENKSLSTYYQQCKKQLEVIRSQQQKRQGTS

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 Mitogen-activated protein kinase kinase kinase 7 (EC 2.7.11.25) (Transforming growth factor-beta-activated kinase 1) (TGF-beta-activated kinase 1) 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: Serine/threonine kinase which acts as an essential component of the MAP kinase signal transduction pathway (PubMed:10748100, PubMed:16157589, PubMed:21183079, PubMed:29291351). Plays an important role in the cascades of cellular responses evoked by changes in the environment (PubMed:10748100, PubMed:16157589, PubMed:21183079, PubMed:29291351). Mediates signal transduction of TRAF6, various cytokines including interleukin-1 (IL-1), transforming growth factor-beta (TGFB), TGFB-related factors like BMP2 and BMP4, toll-like receptors (TLR), tumor necrosis factor receptor CD40 and B-cell receptor (BCR) (PubMed:10748100, PubMed:16157589, PubMed:21183079, PubMed:29291351, PubMed:8533096). Once activated, acts as an upstream activator of the MKK/JNK signal transduction cascade and the p38 MAPK signal transduction cascade through the phosphorylation and activation of several MAP kinase kinases like MAP2K1/MEK1, MAP2K3/MKK3, MAP2K6/MKK6 and MAP2K7/MKK7 (By similarity). These MAP2Ks in turn activate p38 MAPKs and c-jun N-terminal kinases (JNKs); both p38 MAPK and JNK pathways control the transcription factors activator protein-1 (AP-1) (By similarity). Independently of MAP2Ks and p38 MAPKs, acts as a key activator of NF-kappa-B by promoting activation of the I-kappa-B-kinase (IKK) core complex (PubMed:17965022). Mechanistically, recruited to polyubiquitin chains of RIPK2 and IKBKG/NEMO via TAB2/MAP3K7IP2 and TAB3/MAP3K7IP3, and catalyzes phosphorylation and activation of IKBKB/IKKB component of the IKK complex, leading to NF-kappa-B activation (By similarity). In osmotic stress signaling, plays a major role in the activation of MAPK8/JNK1, but not that of NF-kappa-B (By similarity). Promotes TRIM5 capsid-specific restriction activity (By similarity). Phosphorylates RIPK1 at 'Ser-321' which positively regulates RIPK1 interaction with RIPK3 to promote necroptosis but negatively regulates RIPK1 kinase activity and its interaction with FADD to mediate apoptosis (PubMed:28842570). Phosphorylates STING1 in response to cGAMP-activation, promoting association between STEEP1 and STING1 and STING1 translocation to COPII vesicles (PubMed:37832545).

Subcellular Localization: Cytoplasm . Cell membrane ; Peripheral membrane protein ; Cytoplasmic side . Note=Although the majority of MAP3K7/TAK1 is found in the cytosol, when complexed with TAB1/MAP3K7IP1 and TAB2/MAP3K7IP2, it is also localized at the cell membrane.

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.