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TAK1 Antibody

Catalog # ASC10265

Product Information

Application	WB, IF, E
Primary Accession	O43318
Other Accession	BAA25025, 2924624
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	67196
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	TAK1 antibody can be used for the detection of TAK1 by Western blot at 1 to 4 g/mL. For immunofluorescence start at 20 g/mL.

Additional Information

Gene ID	6885
Other Names	TAK1 Antibody: TAK1, MEKK7, TGF1a, TAK1, Mitogen-activated protein kinase kinase kinase 7, Transforming growth factor-beta-activated kinase 1, TGF-beta-activated kinase 1, mitogen-activated protein kinase kinase kinase 7
Target/Specificity	MAP3K7;
Reconstitution & Storage	TAK1 antibody can be stored at 4℃ for three months and -20℃, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.
Precautions	TAK1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	MAP3K7 {ECO:0000303|PubMed:28397838, ECO:0000312|HGNC:HGNC:6859}
Function	Serine/threonine kinase which acts as an essential component of the MAP kinase signal transduction pathway (PubMed:10094049, PubMed:11460167, PubMed:12589052, PubMed:16845370, PubMed:16893890, PubMed:21512573, PubMed:8663074, PubMed:9079627). Plays an important role in the cascades of cellular responses evoked by changes in the environment (PubMed:10094049, PubMed:11460167, PubMed:12589052, PubMed:16845370, PubMed:16893890, PubMed:21512573, PubMed:8663074, PubMed:9079627). 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:16893890, PubMed:9079627). 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 (PubMed:11460167, PubMed:8663074). 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) (PubMed:11460167, PubMed:12589052, PubMed:8663074). 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:12589052, PubMed:8663074). 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 (PubMed:10094049, PubMed:11460167). In osmotic stress signaling, plays a major role in the activation of MAPK8/JNK1, but not that of NF-kappa-B (PubMed:16893890). Promotes TRIM5 capsid-specific restriction activity (PubMed:21512573). 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 (By similarity). Phosphorylates STING1 in response to cGAMP-activation, promoting association between STEEP1 and STING1 and STING1 translocation to COPII vesicles (PubMed:37832545).
Cellular Location	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
Tissue Location	Isoform 1A is the most abundant in ovary, skeletal muscle, spleen and blood mononuclear cells. Isoform 1B is highly expressed in brain, kidney and small intestine. Isoform 1C is the major form in prostate. Isoform 1D is the less abundant form

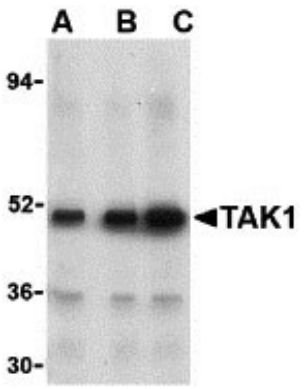
Background

TAK1 Antibody: TAK1 (TGF-beta activated protein kinase 1) is a widely expressed enzyme originally identified as a mitogen-activated protein kinase kinase kinase (MAP3K7). It has since been shown to mediate various intracellular signaling pathways, such as those induced by TGF-beta and members of the Toll-IL-1R (TIR) superfamily, thus acting as an intermediate in both proliferative and innate and adaptive immune responses. TAK1 is normally present in cells in a complex with TAK1-binding protein 1 (TAB1) and either TAB2 or TAB3. Association with TAB1 triggers TAK1 kinase activity by inducing TAK1 autophosphorylation, while TAB2 and possibly TAB3 may contribute to SAPK2a/p38a-mediated feedback inhibition of TAK1 activity.

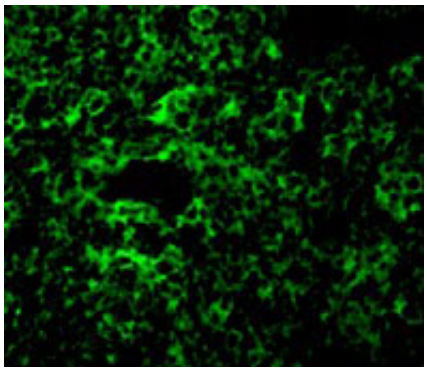
References

Yamaguchi K, Shirakabe K, Shibuya H, et al. Identification of a member of the MAPKKK family as a potential mediator of TGF-β signal transduction. Science 1995; 270:2008-11.
Irie T, Muta T, and Takeshige K. TAK1 mediates an activation signal from toll-like receptor(s) to nuclear factor-κB in lipopolysaccharide-stimulated macrophages. FEBS Lett. 2000; 467:160-4.
Akira S and Takeda K. Toll-like receptor Signalling. Nat. Rev. Immunol. 2004; 4:499-511.
Jiang Z, Ninomiya-Tsuji J, Qian Y, et al. Interleukin-1 (IL-1) receptor-associated kinase-dependent IL-1-induced signaling complexes phosphorylate TAK1 and TAB2 at the plasma membrane and activate TAK1 in the cytosol. Mol. Cell Biol. 2002; 22:7158-67.

Images



Western blot analysis of TAK1 in Rat thymus cell lysate with TAK1 antibody at (A) 1, (B) 2, and (C) 4 µg/mL.



Immunofluorescence of TAK1 in Rat Thymus cells with TAK1 antibody at 10 µg/mL.

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