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IKK beta Antibody

Purified Mouse Monoclonal Antibody (Mab)
Catalog # AM8109a

Product Information

Application	WB, E
Primary Accession	O14920
Reactivity	Human
Host	Mouse
Clonality	Monoclonal
Isotype	Mouse IgG1
Clone Names	62AT216
Calculated MW	86564

Additional Information

Gene ID	3551
Other Names	Inhibitor of nuclear factor kappa-B kinase subunit beta, I-kappa-B-kinase beta, IKK-B, IKK-beta, IkBKB, I-kappa-B kinase 2, IKK2, Nuclear factor NF-kappa-B inhibitor kinase beta, NFKBIKB, IKBKB, IKKB
Target/Specificity	This IKK beta antibody was raised using purified His-tagged recombinant full length human IKK beta.
Dilution	WB~~1:4000 E~~Use at an assay dependent concentration.
Format	fomat Purified monoclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein G column, followed by dialysis against PBS.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	IKK beta Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	IKBKB
Synonyms	IKKB
Function	Serine kinase that plays an essential role in the NF-kappa-B signaling pathway which is activated by multiple stimuli such as inflammatory cytokines, bacterial or viral products, DNA damages or other cellular stresses

(PubMed:20434986, PubMed:20797629, PubMed:21138416, PubMed:30337470, PubMed:9346484). Acts as a part of the canonical IKK complex in the conventional pathway of NF-kappa-B activation (PubMed:9346484). Phosphorylates inhibitors of NF-kappa-B on 2 critical serine residues (PubMed:20434986, PubMed:20797629, PubMed:21138416, PubMed:9346484). These modifications allow polyubiquitination of the inhibitors and subsequent degradation by the proteasome (PubMed:20434986, PubMed:20797629, PubMed:21138416, PubMed:9346484). In turn, free NF-kappa-B is translocated into the nucleus and activates the transcription of hundreds of genes involved in immune response, growth control, or protection against apoptosis (PubMed:20434986, PubMed:20797629, PubMed:21138416, PubMed:9346484). In addition to the NF-kappa-B inhibitors, phosphorylates several other components of the signaling pathway including NEMO/IKBKG, NF-kappa-B subunits RELA and NFKB1, as well as IKK-related kinases TBK1 and IKBKE (PubMed:11297557, PubMed:14673179, PubMed:20410276, PubMed:21138416). IKK-related kinase phosphorylations may prevent the overproduction of inflammatory mediators since they exert a negative regulation on canonical IKKs (PubMed:11297557, PubMed:20410276, PubMed:21138416). Phosphorylates FOXO3, mediating the TNF-dependent inactivation of this pro-apoptotic transcription factor (PubMed:15084260). Also phosphorylates other substrates including NAA10, NCOA3, BCL10 and IRS1 (PubMed:17213322, PubMed:19716809). Phosphorylates RIPK1 at 'Ser-25' which represses its kinase activity and consequently prevents TNF- mediated RIPK1-dependent cell death (By similarity). Phosphorylates the C-terminus of IRF5, stimulating IRF5 homodimerization and translocation into the nucleus (PubMed:25326418). Following bacterial lipopolysaccharide (LPS)-induced TLR4 endocytosis, phosphorylates STAT1 at 'Thr-749' which restricts interferon signaling and anti-inflammatory responses and promotes innate inflammatory responses (PubMed:38621137). IKBKB-mediated phosphorylation of STAT1 at 'Thr-749' promotes binding of STAT1 to the ARID5A promoter, resulting in transcriptional activation of ARID5A and subsequent ARID5A-mediated stabilization of IL6 (PubMed:32209697). It also promotes binding of STAT1 to the IL12B promoter and activation of IL12B transcription (PubMed:32209697).

Cellular Location

Cytoplasm. Nucleus. Membrane raft. Note=Colocalized with DPP4 in membrane rafts.

Tissue Location

Highly expressed in heart, placenta, skeletal muscle, kidney, pancreas, spleen, thymus, prostate, testis and peripheral blood

Background

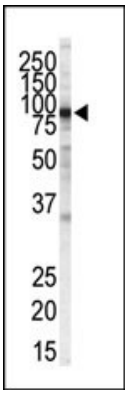
NFKB1 (MIM 164011) or NFKB2 (MIM 164012) is bound to REL (MIM 164910), RELA (MIM 164014), or RELB (MIM 604758) to form the NFKB complex. The NFKB complex is inhibited by I-kappa-B proteins (NFKBIA, MIM 164008, or NFKBIB, MIM 604495), which inactivate NF-kappa-B by trapping it in the cytoplasm. Phosphorylation of serine residues on the I-kappa-B proteins by kinases (IKBKA, MIM 600664, or IKBKB) marks them for destruction via the ubiquitination pathway, thereby allowing activation of the NF-kappa-B complex. Activated NFKB complex translocates into the nucleus and binds DNA at kappa-B-binding motifs such as 5-prime GGGRNNYYCC 3-prime or 5-prime HGGARNYYCC 3-prime (where H is A, C, or T; R is an A or G purine; and Y is a C or T pyrimidine).

References

Downregulation of active IKK beta by Ro52-mediated autophagy. Niida M, et al. Mol Immunol, 2010 Aug. PMID 20627395.
Interleukin-9 polymorphism in infants with respiratory syncytial virus infection: an opposite effect in boys

and girls. Schuurhof A, et al. Pediatr Pulmonol, 2010 Jun. PMID 20503287.
Association between anti-tumour necrosis factor treatment response and genetic variants within the TLR and NF{kappa}B signalling pathways. Potter C, et al. Ann Rheum Dis, 2010 Jul. PMID 20448286.
Protein phosphatase 2A acts as a mitogen-activated protein kinase kinase kinase 3 (MEKK3) phosphatase to inhibit lysophosphatidic acid-induced IkappaB kinase beta/nuclear factor-kappaB activation. Sun W, et al. J Biol Chem, 2010 Jul 9. PMID 20448038.
Respiratory syncytial virus-mediated NF-kappa B p65 phosphorylation at serine 536 is dependent on RIG-I, TRAF6, and IKK beta. Yoboua F, et al. J Virol, 2010 Jul. PMID 20410276.

Images



All lanes : Anti-IKK beta Antibody at 1:4000 dilution Lane 1: HL-60 whole cell lysates Lane 2: Hela whole cell lysates Lane 3: Jurkat whole cell lysates Lysates/proteins at 20 µg per lane. Secondary Goat Anti-mouse IgG, (H+L), Peroxidase conjugated at 1/10000 dilution Predicted band size : 87 kDa Blocking/Dilution buffer: 5% NFDM/TBST.

Citations

- Targeting Macrophage Histone H3 Modification as a Leishmania Strategy to Dampen the NF-κB/NLRP3-Mediated Inflammatory Response
- TNF and IL-1 exhibit distinct ubiquitin requirements for inducing NEMO-IKK supramolecular structures.
- Negative feedback loop in T cell activation through IkappaB kinase-induced phosphorylation and degradation of Bcl10.
- Human HOIP and LUBAC deficiency underlies autoinflammation, immunodeficiency, amylopectinosis, and lymphangiectasia.
- Immunodeficiency, autoinflammation and amylopectinosis in humans with inherited HOIL-1 and LUBAC deficiency.
- Role of Src signal transduction pathways in scatter factor-mediated cellular protection.
- Iron-mediated H2O2 production as a mechanism for cell type-specific inhibition of tumor necrosis factor alpha-induced but not interleukin-1beta-induced IkappaB kinase complex/nuclear factor-kappaB activation.

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