10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

IKK beta Antibody

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP8109a

Product Information

Application	WB, IHC-P, IF, E
Primary Accession	O14920
Reactivity	Human
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
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 is generated from rabbits immunized with recombinant human IKK beta (full length sequence).
Dilution	WB~~1:1000 IHC-P~~1:100~500 IF~~1:10~50 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is prepared by Saturated Ammonium Sulfate (SAS) precipitation 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

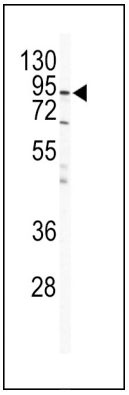
Background

This gene encodes a member of the serine/threonine protein kinase family. The encoded protein, a component of a cytokine-activated protein complex that is an inhibitor of the essential transcription factor NF-kappa-B complex, phosphorylates sites that trigger the degradation of the inhibitor via the ubiquination pathway, thereby activating the transcription factor.

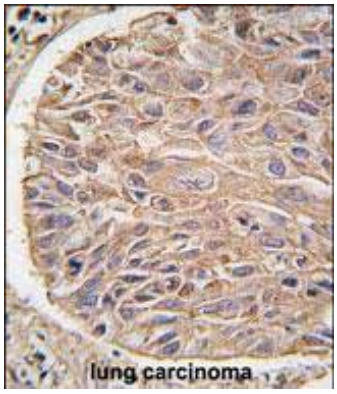
References

Tang, E.D., et al., J. Biol. Chem. 278(40):38566-38570 (2003).
Sakurai, H., et al., J. Biol. Chem. 278(38):36916-36923 (2003).
Ebner, K., et al., Blood 102(1):192-199 (2003).
Carter, R.S., et al., J. Biol. Chem. 278(22):19642-19648 (2003).
Huang, W.C., et al., J. Biol. Chem. 278(11):9944-9952 (2003).

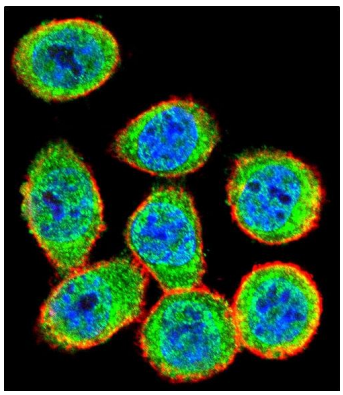
Images



Western blot analysis of anti-IKK beta Antibody (Cat.#AP8109a) in Hela cell line lysates (35ug/lane). IKK beta(arrow) was detected using the purified Pa).



Formalin-fixed and paraffin-embedded human lung carcinoma tissue reacted with IKK beta antibody (Cat.#AP8109a), which was peroxidase-conjugated to the secondary antibody, followed by DAB staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated.



Confocal immunofluorescent analysis of IKK beta Antibody(Cat#AP8109a) with Hela cell followed by Alexa Fluor 488-conjugated goat anti-rabbit lgG (green). Actin filaments have been labeled with Alexa Fluor 555 phalloidin (red).DAPI was used to stain the cell nuclear (blue).

Citations

- Regulation of I(kappa)B kinase complex by phosphorylation of (gamma)-binding domain of I(kappa)B kinase (beta) by Polo-like kinase 1.
- The Listeria monocytogenes InlC protein interferes with innate immune responses by targeting the I{kappa}B kinase subunit IKK{alpha}.
- Increased NF-κB and Decreased Wnt-β-Catenin Signaling Mediate the Reduced Osteoblast Differentiation and Function in F508Δ-CFTR Mice.
- Activation of porcine alveolar macrophages by Actinobacillus pleuropneumoniae lipopolysaccharide via the TLR4/NF-κB mediated pathway.

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