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IKK alpha Antibody

Catalog # ASC10060

Product Information

Application	WB, IF, ICC, E
Primary Accession	O15111
Other Accession	AF009225, 2327068
Reactivity	Human
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	84640
Conjugate	Unconjugated
Application Notes	IKK alpha antibody can be used for detection of IKK alpha by Western blot 0.5 g/mL. A 85 kDa band should be detected. Antibody can also be used for immunocytochemistry starting at 10 g/mL. For immunofluorescence start at 20 g/mL.

Additional Information

Gene ID	1147
Other Names	IKK alpha Antibody: IKK1, IKKA, IKBKA, TCF16, NFKBIKA, IKK-alpha, Inhibitor of nuclear factor kappa-B kinase subunit alpha, Conserved helix-loop-helix ubiquitous kinase, I-kappa-B kinase alpha, conserved helix-loop-helix ubiquitous kinase
Target/Specificity	CHUK; This polyclonal antibody has no cross response to IKKb or IKKy.
Reconstitution & Storage	IKK alpha 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	IKK alpha Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	CHUK
Synonyms	IKKA, TCF16
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:18626576, PubMed:9244310, PubMed:9252186, PubMed:9346484). Acts as a part of the canonical IKK complex in the conventional pathway of

NF-kappa-B activation and phosphorylates inhibitors of NF-kappa-B on serine residues (PubMed:18626576, PubMed:35952808, PubMed:9244310, PubMed:9252186, PubMed:9346484). These modifications allow polyubiquitination of the inhibitors and subsequent degradation by the proteasome (PubMed:18626576, PubMed:9244310, PubMed:9252186, 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:18626576, PubMed:9244310, PubMed:9252186, PubMed:9346484). Negatively regulates the pathway by phosphorylating the scaffold protein TAXBP1 and thus promoting the assembly of the A20/TNFAIP3 ubiquitin-editing complex (composed of A20/TNFAIP3, TAX1BP1, and the E3 ligases ITCH and RNF11) (PubMed:21765415). Therefore, CHUK plays a key role in the negative feedback of NF-kappa-B canonical signaling to limit inflammatory gene activation. As part of the non-canonical pathway of NF-kappa-B activation, the MAP3K14-activated CHUK/IKKA homodimer phosphorylates NFKB2/p100 associated with RelB, inducing its proteolytic processing to NFKB2/p52 and the formation of NF-kappa-B RelB-p52 complexes (PubMed:20501937). In turn, these complexes regulate genes encoding molecules involved in B-cell survival and lymphoid organogenesis. Also participates in the negative feedback of the non-canonical NF-kappa-B signaling pathway by phosphorylating and destabilizing MAP3K14/NIK. Within the nucleus, phosphorylates CREBBP and consequently increases both its transcriptional and histone acetyltransferase activities (PubMed:17434128). Modulates chromatin accessibility at NF-kappa-B- responsive promoters by phosphorylating histones H3 at 'Ser-10' that are subsequently acetylated at 'Lys-14' by CREBBP (PubMed:12789342). Additionally, phosphorylates the CREBBP-interacting protein NCOA3. Also phosphorylates FOXO3 and may regulate this pro-apoptotic transcription factor (PubMed:15084260). Phosphorylates RIPK1 at 'Ser-25' which represses its kinase activity and consequently prevents TNF-mediated RIPK1-dependent cell death (By similarity). Phosphorylates AMBRA1 following mitophagy induction, promoting AMBRA1 interaction with ATG8 family proteins and its mitophagic activity (PubMed:30217973).

Cellular Location Cytoplasm. Nucleus Note=Shuttles between the cytoplasm and the nucleus

Tissue Location Widely expressed.

Background

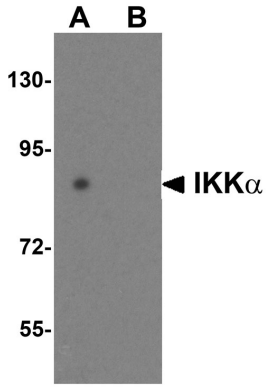
IKK alpha Antibody: Nuclear factor kappa B (NF-κB) is a ubiquitous transcription factor and an essential mediator of gene expression during activation of immune and inflammatory responses. NF-κB mediates the expression of a great variety of genes in response to extracellular stimuli including IL-1, TNFα and bacteria product LPS. NF-κB is associated with IκB proteins in the cell cytoplasm, which inhibit NF-κB activity. The long-sought IκB kinase (IKK), which phosphorylates IκB, and mediates IκB degradation and NF-κB activation, was recently identified by several laboratories. IKK is a serine protein kinase, and the IKK complex contains alpha and beta subunits (IKKα and IKKβ). IKKα and IKKβ interact with each other and both are essential for the NF-κB activation. IKKα specifically phosphorylates IκB-alpha. IKKα is expressed in a variety of human tissues.

References

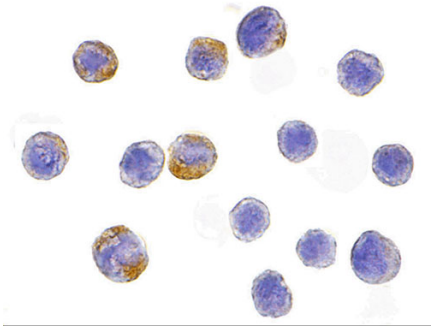
DiDonato JA, Hayakawa M, Rothwarf DM, Zandi E, Karin M. A cytokine-responsive IκB kinase that activates the transcription factor NF-κB. Nature 1997;388:548-54
Regnier CH, Song HY, Gao X, Goeddel DV, Cao Z, Rothe M. Identification and characterization of an IκB kinase. Cell 1997;90:373-83
Zandi E, Rothwarf DM, Delhase M, Hayakawa M, Karin M. The IκB kinase complex (IKK) contains two kinase

subunits, IKKα and IKKα, necessary for IκB phosphorylation and NF-κB activation. Cell 1997;91:243-52
Woronicz JD, Gao X, Cao Z, Rothe M, Goeddel DY. IκB kinase-β: NF-κB activation and complex formation with IκB kinase-α and NIK. Science 1997;278:866-9

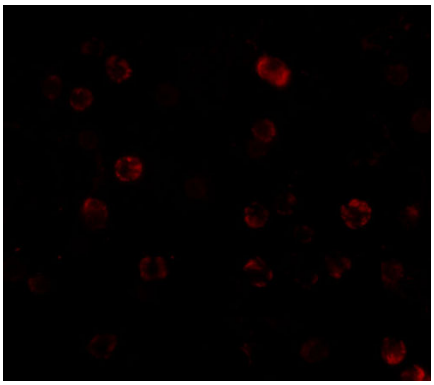
Images



Western blot analysis of IKK alpha in HeLa cell lysate with IKK alpha antibody at 1 µg/mL in (A) the absence and (B) the presence of blocking peptide.



Immunocytochemistry of IKK alpha in HeLa cells with IKK alpha antibody at 10 µg/mL.



Immunofluorescence of IKKa in HeLa cells with IKKa antibody at 2 µg/mL.

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