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IKBKB Antibody

Purified Mouse Monoclonal Antibody
Catalog # AO1087a

Product Information

Application	WB, E
Primary Accession	O14920
Reactivity	Human
Host	Mouse
Clonality	Monoclonal
Clone Names	10A2
Isotype	IgG1
Calculated MW	86564
Description	IKBKB(Inhibitor of kappa light polypeptide gene enhancer in B-cells, kinase beta, also called IKK2/IKKB), is a member of the IKK complex which is composed of IKK-alpha, IKK-beta, IKK-gamma and IKAP. Phosphorylation of I-Kappa-B on a serine residue by the IKK complex frees NF-kB from I-Kappa-B and marks it for degradation via ubiquination. IKK-beta has been shown to activate NF-kB and phosphorylate IKB-alpha and beta. Phosphorylation of 2 sites at the activation loop of IKK-beta is essential for activation of IKK by TNF and IL1. Once activated, IKK-beta autophosphorylates which in turn decreases IKK activity and prevents prolonged activation of the inflammatory response. Additionally, IKK-beta activity can also be regulated by MEKK-1.
Immunogen	Purified recombinant fragment of IKBKB expressed in E. Coli.
Formulation	Ascitic fluid containing 0.03% sodium azide.

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, 2.7.11.10, I-kappa-B kinase 2, IKK2, Nuclear factor NF-kappa-B inhibitor kinase beta, NFKBIKB, IKBKB, IKKB
Dilution	WB~~1/500 - 1/2000 E~~N/A
Storage	Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	IKBKB 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

References

1. Azoitei N,et al. Biochemistry. 2005.14;44(23): 8326-36. 2. Kumar KA,et al. Neurosci Lett. 2003.10;340(2): 139-42. 3. Peet GW,et al. J Biol Chem. 1999 Nov 12;274(46): 32655-61.

Images

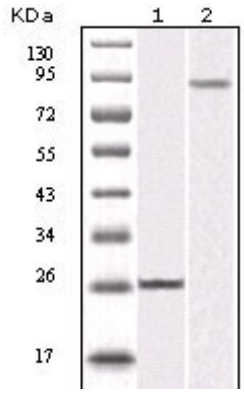

Figure 1: Western blot analysis using IKBKB mouse mAb against truncated IKBKB recombinant protein (1) and K562 cell lysate (2).

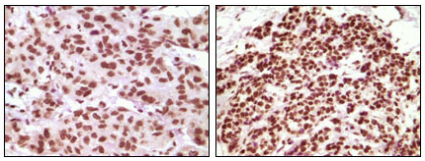

Figure 2: Immunohistochemical analysis of paraffin-embedded human infiltrating ductal carcinoma tissue(left) and simple carcinoma of breast cancer tissue(right), showing nuclear localization using PR mouse mAb with DAB staining.