

# IKK beta Antibody

Catalog # ASC10062

## Product Information

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<b>Application</b>	WB, IF, ICC, E
<b>Primary Accession</b>	<a href="#">O14920</a>
<b>Other Accession</b>	<a href="#">O14920</a> , <a href="#">14285497</a>
<b>Reactivity</b>	Human
<b>Host</b>	Rabbit
<b>Clonality</b>	Polyclonal
<b>Isotype</b>	IgG
<b>Calculated MW</b>	86564
<b>Conjugate</b>	Unconjugated
<b>Application Notes</b>	IKK beta antibody can be used for detection of IKK beta by Western blot at 0.5 $\mu$ g/mL. A 87 kDa band should be detected. Antibody can also be used for immunocytochemistry starting at 10 $\mu$ g/mL. For immunofluorescence start at 10 $\mu$ g/mL.

## Additional Information

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<b>Gene ID</b>	3551
<b>Other Names</b>	IKK beta Antibody: IKK2, IKKB, IMD15, NFKB1KB, IKK-beta, Inhibitor of nuclear factor kappa-B kinase subunit beta, I-kappa-B kinase 2, I-kappa-B-kinase beta, inhibitor of kappa light polypeptide gene enhancer in B-cells, kinase beta
<b>Target/Specificity</b>	IKBKB; This polyclonal antibody has no cross response to IKKa or IKKy.
<b>Reconstitution &amp; Storage</b>	IKK beta antibody can be stored at 4°C for three months and -20°C, 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.
<b>Precautions</b>	IKK beta Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

## Protein Information

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<b>Name</b>	IKBKB
<b>Synonyms</b>	IKKB
<b>Function</b>	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: <a href="#">20434986</a> , PubMed: <a href="#">20797629</a> , PubMed: <a href="#">21138416</a> , PubMed: <a href="#">30337470</a> , PubMed: <a href="#">9346484</a> ). 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 IKBE (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

IKK beta 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 NF-κB activation. IKKβ phosphorylates both IκB-alpha and IκB-beta. IKKβ is expressed in variety of human tissues.

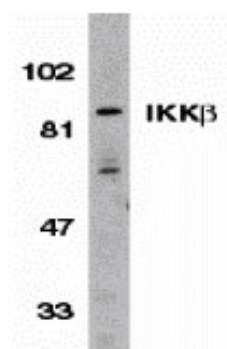
## References

- 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

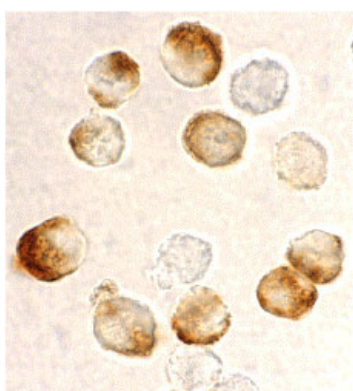
subunits, IKK $\alpha$  and IKK $\beta$ , necessary for I $\kappa$ B phosphorylation and NF- $\kappa$ B activation. Cell 1997;91:243-52  
Woronicz JD, Gao X, Cao Z, Rothe M, Goeddel DY. I $\kappa$ B kinase- $\beta$ : NF- $\kappa$ B activation and complex formation with I $\kappa$ B kinase- $\alpha$  and NIK. Science 1997;278:866-9

## Images

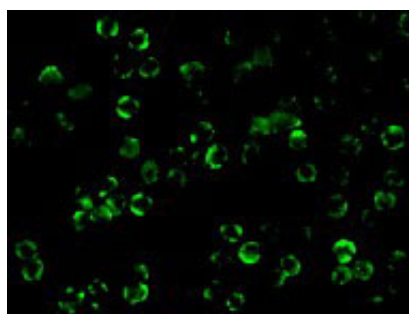
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Western blot analysis of IKK beta in Jurkat whole cell lysate with IKK beta antibody (C3) at 1:500 dilution.



Immunocytochemistry staining of HeLa cells using IKK beta antibody at 10  $\mu$ g/mL.



Immunofluorescence of IKK beta in HeLa cells with IKK beta antibody at 10  $\mu$ g/mL.

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