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Phospho-NAK/TBK1 (S172) Antibody

Rabbit mAb
Catalog # AP92332

Product Information

Application	WB, IP
Primary Accession	Q9UHD2
Reactivity	Rat, Human, Mouse
Clonality	Monoclonal
Other Names	FTDALS4; NAK; T2K; Tbk1;
Isotype	Rabbit IgG
Host	Rabbit
Calculated MW	83642

Additional Information

Dilution	WB 1:500~1:2000 IP 1:50
Purification	Affinity-chromatography
Immunogen	A synthesized peptide derived from human Phospho-NAK/TBK1 (S172)
Description	Serine/threonine protein involved in the signaling cascade converging to the activation of the transcription factor NF-kappa-B. May function as an IKK kinase, playing an essential role in the transcription of a subset of TNF-alpha-induced genes. Also mediates production of RANTES/CCL5 and interferon-beta/IFNB1.
Storage Condition and Buffer	Rabbit IgG in phosphate buffered saline , pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol. Store at +4°C short term. Store at -20°C long term. Avoid freeze / thaw cycle.

Protein Information

Name	TBK1 {ECO:0000303|PubMed:10581243, ECO:0000312|HGNC:HGNC:11584}
Function	Serine/threonine kinase that plays an essential role in regulating inflammatory responses to foreign agents (PubMed:10581243, PubMed:11839743, PubMed:12692549, PubMed:12702806, PubMed:14703513, PubMed:15367631, PubMed:15485837, PubMed:18583960, PubMed:21138416, PubMed:23453971, PubMed:23453972, PubMed:23746807, PubMed:25636800, PubMed:26611359, PubMed:32404352, PubMed:34363755, PubMed:32298923). Following activation of toll-like receptors by viral or bacterial components, associates with TRAF3 and TANK and phosphorylates interferon regulatory factors (IRFs) IRF3 and IRF7 as well as DDX3X (PubMed:12692549, PubMed:12702806, PubMed:14703513, PubMed:15367631, PubMed:18583960, PubMed:25636800). This activity allows subsequent homodimerization and nuclear translocation of the IRFs leading to transcriptional activation of pro-inflammatory and antiviral genes

including IFNA and IFNB (PubMed:12702806, PubMed:15367631, PubMed:25636800, PubMed:32972995). In order to establish such an antiviral state, TBK1 form several different complexes whose composition depends on the type of cell and cellular stimuli (PubMed:23453971, PubMed:23453972, PubMed:23746807). Plays a key role in IRF3 activation: acts by first phosphorylating innate adapter proteins MAVS, STING1 and TICAM1 on their pLxIS motif, leading to recruitment of IRF3, thereby licensing IRF3 for phosphorylation by TBK1 (PubMed:25636800, PubMed:30842653, PubMed:37926288, PubMed:38917796). Phosphorylated IRF3 dissociates from the adapter proteins, dimerizes, and then enters the nucleus to induce expression of interferons (PubMed:25636800). Thus, several scaffolding molecules including FADD, TRADD, MAVS, AZI2, TANK or TBKBP1/SINTBAD can be recruited to the TBK1- containing-complexes (PubMed:21931631). Under particular conditions, functions as a NF-kappa-B effector by phosphorylating NF-kappa-B inhibitor alpha/NFKBIA, IKBKB or RELA to translocate NF-Kappa-B to the nucleus (PubMed:10783893, PubMed:15489227). Restricts bacterial proliferation by phosphorylating the autophagy receptor OPTN/Optineurin on 'Ser-177', thus enhancing LC3 binding affinity and antibacterial autophagy (PubMed:21617041). Phosphorylates SMCR8 component of the C9orf72-SMCR8 complex, promoting autophagosome maturation (PubMed:27103069). Phosphorylates ATG8 proteins MAP1LC3C and GABARAPL2, thereby preventing their delipidation and premature removal from nascent autophagosomes (PubMed:31709703). Seems to play a role in energy balance regulation by sustaining a state of chronic, low-grade inflammation in obesity, which leads to a negative impact on insulin sensitivity (By similarity). Attenuates retroviral budding by phosphorylating the endosomal sorting complex required for transport-I (ESCRT-I) subunit VPS37C (PubMed:21270402). Phosphorylates Borna disease virus (BDV) P protein (PubMed:16155125). Plays an essential role in the TLR3- and IFN-dependent control of herpes virus HSV-1 and HSV-2 infections in the central nervous system (PubMed:22851595). Acts both as a positive and negative regulator of the mTORC1 complex, depending on the context: activates mTORC1 in response to growth factors by catalyzing phosphorylation of MTOR, while it limits the mTORC1 complex by promoting phosphorylation of RPTOR (PubMed:29150432, PubMed:31530866). Acts as a positive regulator of the mTORC2 complex by mediating phosphorylation of MTOR, leading to increased phosphorylation and activation of AKT1 (By similarity). Phosphorylates and activates AKT1 (PubMed:21464307). Involved in the regulation of TNF-induced RIPK1-mediated cell death, probably acting via CYLD phosphorylation that in turn controls RIPK1 ubiquitination status (PubMed:34363755). Also participates in the differentiation of T follicular regulatory cells together with the receptor ICOS (PubMed:27135603).

Cellular Location

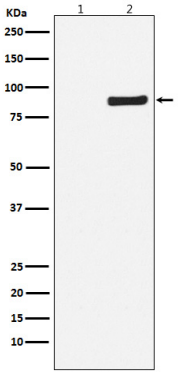
Cytoplasm. Note=Upon mitogen stimulation or triggering of the immune system, TBK1 is recruited to the exocyst by EXOC2.

Tissue Location

Ubiquitous with higher expression in testis. Expressed in the ganglion cells, nerve fiber layer and microvasculature of the retina.

Images

Western blot analysis of NAK/TBK1 (phospho S172) expression in (1) HeLa cell lysate; (2) HeLa cell treated with Calyculin A .



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