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Anti-NAK/TBK1 (N-term) Rabbit Monoclonal Antibody

Catalog # ABO14234

Product Information

Application	WB, IHC, IF, ICC
Primary Accession	Q9UHD2
Host	Rabbit
Isotype	Rabbit IgG
Reactivity	Rat, Human, Mouse
Clonality	Monoclonal
Format	Liquid
Description	Anti-NAK/TBK1 (N-term) Rabbit Monoclonal Antibody . Tested in WB, IHC, ICC/IF applications. This antibody reacts with Human, Mouse, Rat.

Additional Information

Gene ID	29110
Other Names	Serine/threonine-protein kinase TBK1, 2.7.11.1, NF-kappa-B-activating kinase, T2K, TANK-binding kinase 1, TBK1 {ECO:0000303|PubMed:10581243, ECO:0000312|HGNC:HGNC:11584}
Calculated MW	83642
Application Details	WB 1:500-1:2000 IHC 1:50-1:200 ICC/IF 1:50-1:200
Subcellular Localization	Cytoplasm. Upon mitogen stimulation or triggering of the immune system, TBK1 is recruited to the exocyst by EXOC2.
Tissue Specificity	Ubiquitous with higher expression in testis. Expressed in the ganglion cells, nerve fiber layer and microvasculature of the retina..
Source	Eukaryota
Contents	Rabbit IgG in phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol, 0.4-0.5mg/ml BSA.
Clone Names	Clone: AHE-20
Immunogen	A synthesized peptide derived from human NAK/TBK1 (N-term)
Purification	Affinity-chromatography
Storage	Store at -20°C for one year. For short term storage and frequent use, store at 4°C for up to one month. Avoid repeated freeze-thaw cycles.

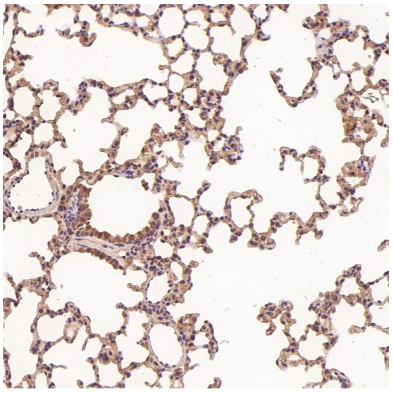
Protein Information

Name TBK1 {ECO:0000303|PubMed:10581243, ECO:0000312|HGNC:HGNC:11584}

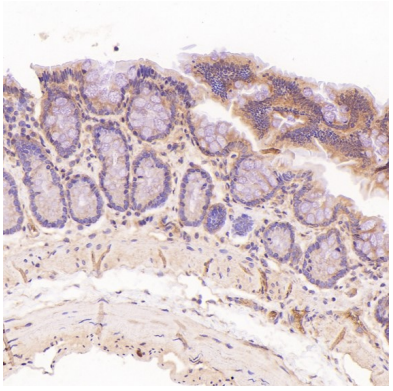
Function Serine/threonine kinase that plays an essential role in regulating inflammatory responses to foreign agents (PubMed:10581243, PubMed:11839743, PubMed:12692549, PubMed:12702806, PubMed:14703513, PubMed:15367631, PubMed:15485837, PubMed:18583960, PubMed:21138416, PubMed:23453971, PubMed:23453972, 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.

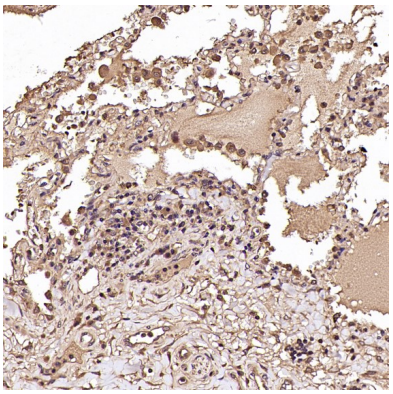
Images



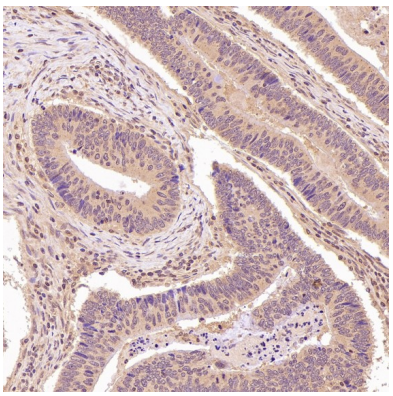
Immunohistochemical analysis of paraffin-embedded Rat liver, using the Antibody at 1:50 dilution.



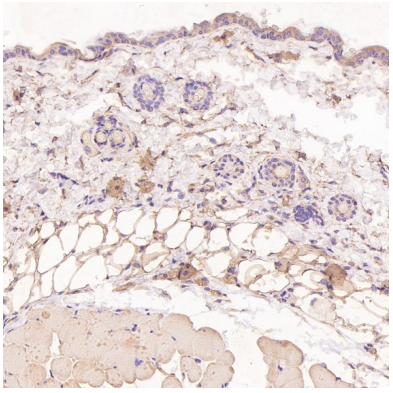
Immunohistochemical analysis of paraffin-embedded Rat stomach, using the Antibody at 1:50 dilution.



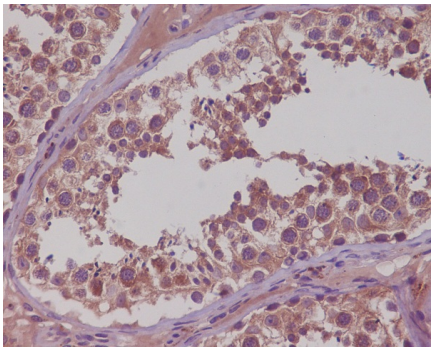
Immunohistochemical analysis of paraffin-embedded Human lung, using the Antibody at 1:50 dilution.



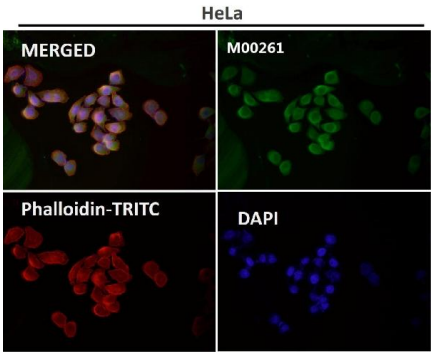
Immunohistochemical analysis of paraffin-embedded Human colon cancer, using the Antibody at 1:100 dilution.



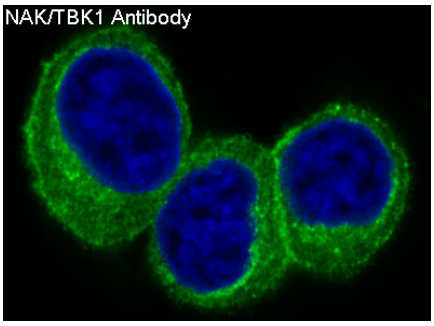
Immunohistochemical analysis of paraffin-embedded Mouse skin, using the Antibody at 1:50 dilution.



Immunohistochemical analysis of paraffin-embedded human testis, using NAK/TBK1 (N-term) Antibody.



Immunofluorescent analysis using the Antibody at 1:50 dilution.



Immunofluorescent analysis of MCF7 cells, using NAK/TBK1 (N-term) Antibody.

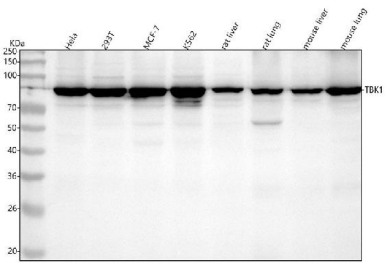


Figure 1. Western blot analysis of NAK/TBK1 using anti-NAK/TBK1 antibody (M00261).
Electrophoresis was performed on a 5-20% SDS-PAGE gel at 70V (Stacking gel) / 90V (Resolving gel) for 2-3 hours.
The sample well of each lane was loaded with 30 ug of sample under reducing conditions.
Lane 1: human Hela whole cell lysates,
Lane 2: human 293T whole cell lysates,
Lane 3: human MCF-7 whole cell lysates,
Lane 4: human K562 whole cell lysates,
Lane 5: rat liver tissue lysates,
Lane 6: rat lung tissue lysates,
Lane 7: mouse liver tissue lysates,

Lane 8: mouse lung tissue lysates.
After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-NAK/TBK1 antigen affinity purified monoclonal antibody (Catalog # M00261) at 1:500 overnight at 4°C, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal is developed using an Enhanced Chemiluminescent detection (ECL) kit (Catalog # EK1002) with Tanon 5200 system. A specific band was detected for NAK/TBK1 at approximately 84 kDa. The expected band size for NAK/TBK1 is at 84 kDa.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.