

**Anti-NAK Antibody**  
Catalog # ABO11424

**Specification**

---

**Anti-NAK Antibody - Product Information**

Application	IHC, WB
Primary Accession	<a href="#">Q9UHD2</a>
Host	Rabbit
Reactivity	Human, Mouse, Rat
Clonality	Polyclonal
Format	Lyophilized

**Description**

Rabbit IgG polyclonal antibody for Serine/threonine-protein kinase TBK1(TBK1) detection. Tested with WB, IHC-P in Human;Mouse;Rat.

**Reconstitution**

Add 0.2ml of distilled water will yield a concentration of 500ug/ml.

**Anti-NAK Antibody - 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, NAK

**Calculated MW**

83642 MW KDa

**Application Details**

Immunohistochemistry(Paraffin-embedded Section), 0.5-1 µg/ml, Human, Rat, Mouse, By Heat<br>Western blot, 0.1-0.5 µg/ml, Human, Rat, Mouse<br>

**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. .

**Protein Name**

Serine/threonine-protein kinase TBK1

**Contents**

Each vial contains 5mg BSA, 0.9mg NaCl, 0.2mg Na<sub>2</sub>HPO<sub>4</sub>, 0.05mg Thimerosal, 0.05mg NaN<sub>3</sub>.

**Immunogen**

A synthetic peptide corresponding to a sequence at the C-terminus of human NAK(577-590aa

YNEEQIHKFDKQKL), identical to the related rat and mouse sequences.

#### Purification

Immunogen affinity purified.

#### Cross Reactivity

No cross reactivity with other proteins

#### Storage

**At -20°C for one year. After reconstitution, at 4°C for one month. It can also be aliquotted and stored frozen at -20°C for a longer time. Avoid repeated freezing and thawing.**

#### Sequence Similarities

Belongs to the protein kinase superfamily. Ser/Thr protein kinase family. I-kappa-B kinase subfamily.

### Anti-NAK Antibody - 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](http://www.uniprot.org/citations/10581243), PubMed: [11839743](http://www.uniprot.org/citations/11839743), PubMed: [12692549](http://www.uniprot.org/citations/12692549), PubMed: [12702806](http://www.uniprot.org/citations/12702806), PubMed: [14703513](http://www.uniprot.org/citations/14703513), PubMed: [15367631](http://www.uniprot.org/citations/15367631), PubMed: [15485837](http://www.uniprot.org/citations/15485837), PubMed: [18583960](http://www.uniprot.org/citations/18583960), PubMed: [21138416](http://www.uniprot.org/citations/21138416), PubMed: [23453971](http://www.uniprot.org/citations/23453971), PubMed: [23453972](http://www.uniprot.org/citations/23453972), PubMed: [23746807](http://www.uniprot.org/citations/23746807), PubMed: [25636800](http://www.uniprot.org/citations/25636800), PubMed: [26611359](http://www.uniprot.org/citations/26611359), PubMed: [32404352](http://www.uniprot.org/citations/32404352), PubMed: [34363755](http://www.uniprot.org/citations/34363755), PubMed: [32298923](http://www.uniprot.org/citations/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](http://www.uniprot.org/citations/12692549), PubMed: [12702806](http://www.uniprot.org/citations/12702806), PubMed: [14703513](http://www.uniprot.org/citations/14703513), PubMed: [15367631](http://www.uniprot.org/citations/15367631), PubMed: [18583960](http://www.uniprot.org/citations/18583960), PubMed: [25636800](http://www.uniprot.org/citations/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](http://www.uniprot.org/citations/12702806), PubMed: [15367631](http://www.uniprot.org/citations/15367631), PubMed: [25636800](http://www.uniprot.org/citations/25636800), PubMed: [32972995](http://www.uniprot.org/citations/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:<a href="http://www.uniprot.org/citations/23453971" target="\_blank">23453971</a>, PubMed:<a href="http://www.uniprot.org/citations/23453972" target="\_blank">23453972</a>, PubMed:<a href="http://www.uniprot.org/citations/23746807" target="\_blank">23746807</a>). 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:<a href="http://www.uniprot.org/citations/25636800" target="\_blank">25636800</a>, PubMed:<a href="http://www.uniprot.org/citations/30842653" target="\_blank">30842653</a>). Phosphorylated IRF3 dissociates from the adapter proteins, dimerizes, and then enters the nucleus to induce expression of interferons (PubMed:<a href="http://www.uniprot.org/citations/25636800" target="\_blank">25636800</a>). Thus, several scaffolding molecules including FADD, TRADD, MAVS, AZI2, TANK or TBKBP1/SINTBAD can be recruited to the TBK1-containing-complexes (PubMed:<a href="http://www.uniprot.org/citations/21931631" target="\_blank">21931631</a>). Under particular conditions, functions as a NF- kappa-B effector by phosphorylating NF-kappa-B inhibitor alpha/NFKBIA, IKKB or RELA to translocate NF-Kappa-B to the nucleus (PubMed:<a href="http://www.uniprot.org/citations/10783893" target="\_blank">10783893</a>, PubMed:<a href="http://www.uniprot.org/citations/15489227" target="\_blank">15489227</a>). Restricts bacterial proliferation by phosphorylating the autophagy receptor OPTN/Optineurin on 'Ser-177', thus enhancing LC3 binding affinity and antibacterial autophagy (PubMed:<a href="http://www.uniprot.org/citations/21617041" target="\_blank">21617041</a>). Phosphorylates SMCR8 component of the C9orf72-SMCR8 complex, promoting autophagosome maturation (PubMed:<a href="http://www.uniprot.org/citations/27103069" target="\_blank">27103069</a>). Phosphorylates ATG8 proteins MAP1LC3C and GABARAPL2, thereby preventing their delipidation and premature removal from nascent autophagosomes (PubMed:<a href="http://www.uniprot.org/citations/31709703" target="\_blank">31709703</a>). 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:<a href="http://www.uniprot.org/citations/21270402" target="\_blank">21270402</a>). Phosphorylates Borna disease virus (BDV) P protein (PubMed:<a href="http://www.uniprot.org/citations/16155125" target="\_blank">16155125</a>). 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:<a href="http://www.uniprot.org/citations/22851595" target="\_blank">22851595</a>). 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:<a href="http://www.uniprot.org/citations/29150432" target="\_blank">29150432</a>, PubMed:<a href="http://www.uniprot.org/citations/31530866" target="\_blank">31530866</a>). 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:<a href="http://www.uniprot.org/citations/21464307" target="\_blank">21464307</a>). Involved in the regulation of TNF-induced RIPK1- mediated cell death, probably acting via CYLD phosphorylation that in turn controls RIPK1 ubiquitination status (PubMed:<a href="http://www.uniprot.org/citations/34363755" target="\_blank">34363755</a>). Participates also in the differentiation of T follicular regulatory cells together with the receptor ICOS (PubMed:<a href="http://www.uniprot.org/citations/27135603" target="\_blank">27135603</a>).

### 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

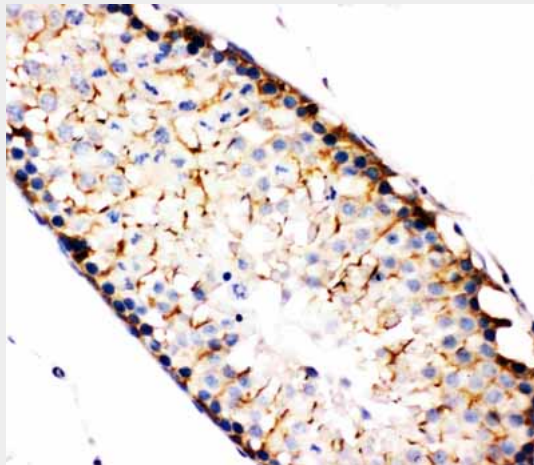
microvasculature of the retina.

### Anti-NAK Antibody - Protocols

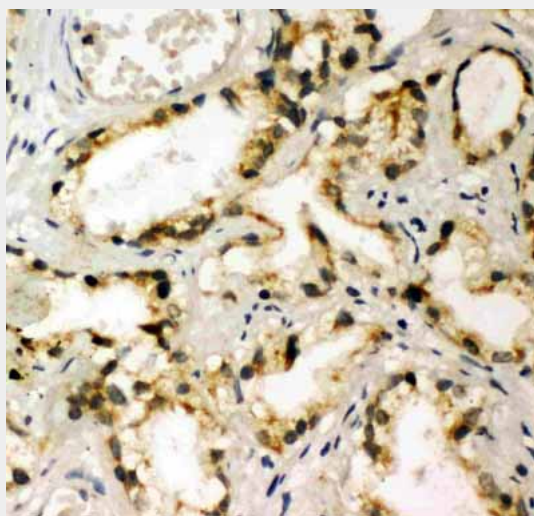
Provided below are standard protocols that you may find useful for product applications.

- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

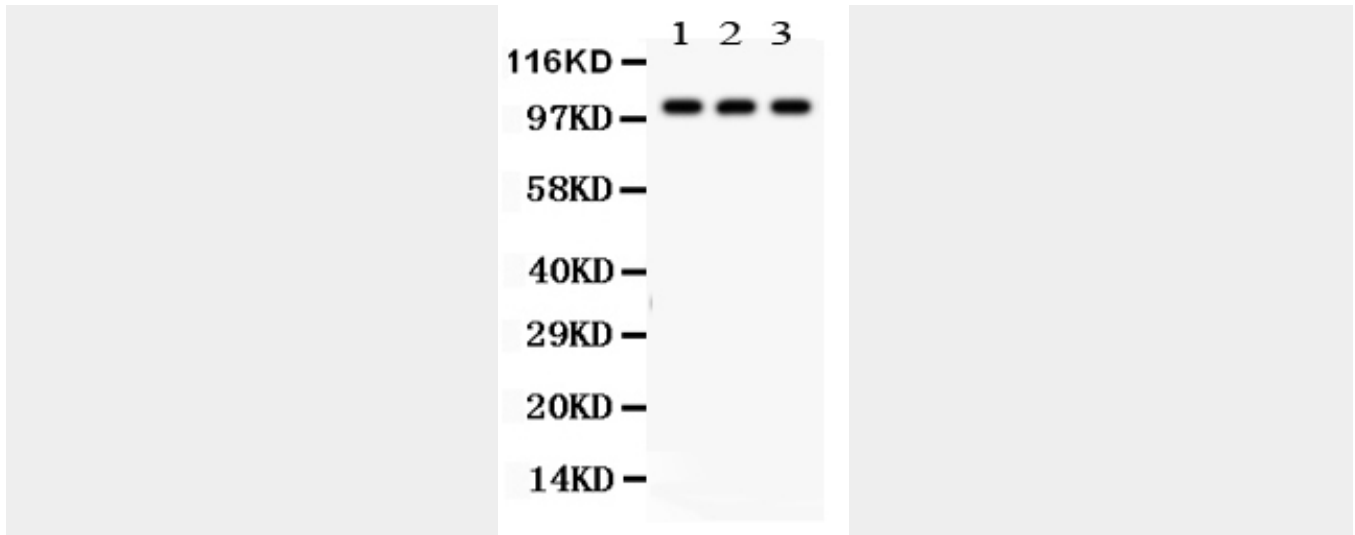
### Anti-NAK Antibody - Images



Anti-NAK antibody, ABO11424, IHC(P)IHC(P): Rat Testis Tissue



Anti-NAK antibody, ABO11424, IHC(P)IHC(P): Human Prostatic Cancer Tissue



Anti-NAK antibody, ABO11424, Western blotting All lanes: Anti TBK1 (ABO11424) at 0.5ug/ml  
Lane 1: HELA Whole Cell Lysate at 40ug  
Lane 2: Rat Testis Tissue Lysate at 50ug  
Lane 3: Rat Liver Tissue Lysate at 50ug  
Predicted bind size: 84KD  
Observed bind size: 100KD

#### **Anti-NAK Antibody - Background**

Serine/threonine-protein kinase TBK1, also called TANK-binding kinase 1 or NF-kappa-B-activating kinase is an enzyme that in humans is encoded by the TBK1 gene. The gene was assigned to human chromosome 12q14.2. Serine/threonine kinase plays an essential role in regulating inflammatory responses to foreign agents. TBK1 and NF-kappa-B signaling are essential in KRAS mutant tumors, and established a general approach for the rational identification of codependent pathways in cancer.