

# PRODUCT INFORMATION



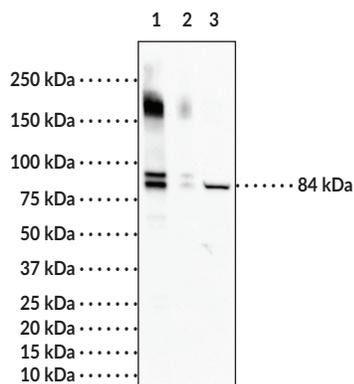
## TBK1 Monoclonal Antibody (Clone 4E6)

Item No. 25924

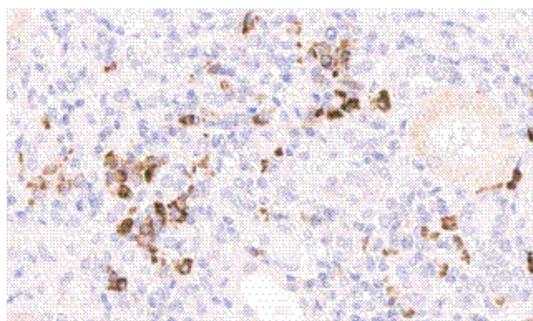
### Overview and Properties

<b>Contents:</b>	This vial contains 100 µg of protein G-purified monoclonal antibody.
<b>Synonyms:</b>	NF-κB-Activating Kinase, Serine/Threonine-Protein Kinase TBK1, TANK-Binding Kinase 1
<b>Immunogen:</b>	Full length human recombinant TBK1 protein
<b>Species Reactivity:</b>	(+) Human
<b>Uniprot No.:</b>	Q9UHD2
<b>Form:</b>	Liquid
<b>Storage:</b>	-20°C (as supplied)
<b>Stability:</b>	≥3 years
<b>Storage Buffer:</b>	PBS, pH 7.2, with 50% glycerol and 0.02% sodium azide
<b>Clone:</b>	4E6
<b>Host:</b>	Mouse
<b>Isotype:</b>	IgG1
<b>Applications:</b>	ELISA, Immunohistochemistry (IHC), and Western blot (WB); the recommended starting dilution for ELISA and WB is 1:1,000 and 1:40 for IHC. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

### Images



Lane 1: TBK1 Recombinant Protein (10 ng)  
Lane 2: TBK1 Recombinant Protein (1 ng)  
Lane 3: Neuro2A Cell Lysate (40 µg)



Immunohistochemistry analysis of formalin-fixed, paraffin-embedded (FFPE) human kidney tissue after heat induced antigen retrieval in pH 6.0 citrate buffer. After incubation with TBK1 Monoclonal Antibody (Clone 4E6) (Item No. 25924) at a 1:40 dilution, slides were incubated with biotinylated secondary antibody, followed by alkaline phosphatase-streptavidin and chromogen (DAB).

**WARNING**  
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

**SAFETY DATA**  
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

**WARRANTY AND LIMITATION OF REMEDY**  
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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## Description

TANK-binding kinase 1 (TBK1) is a non-canonical inhibitor of NF- $\kappa$ B kinase (IKK) that has an essential role in regulating inflammatory responses to pathogens.<sup>1</sup> Following activation of toll-like receptors by viral DNA, TBK1 interacts with various partners such as STING, MAVS, and TANK to phosphorylate and activate interferon regulatory factors (IRFs) 3 and 7 as well as DEAD-box helicase 3 X-linked (DDX3X), which leads to transcriptional activation of pro-inflammatory and antiviral genes including interferon (IFN) subtypes  $\alpha$  and  $\beta$ .<sup>1,2</sup> TBK1 induces nuclear translocation of NF- $\kappa$ B to initiate a pro-inflammatory response via phosphorylation of NF- $\kappa$ B inhibitor  $\alpha$  (NF $\kappa$ B $\alpha$ ), IKK $\beta$ , or NF- $\kappa$ B p65 subunit (RelA).<sup>3</sup> Cytosolic localization of *E. coli*, *Salmonella*, and *S. pyogenes* increases in *TBK1*<sup>-/-</sup> murine embryonic fibroblasts, macrophages, and epithelial cells, suggesting TBK1 maintains vacuolar integrity, which is critical to bacterial clearance.<sup>4</sup> TBK1 phosphorylates the autophagy receptor optineurin to enhance binding of ubiquitin-like microtubule-associated protein light chain 3 (LC3) modifiers and induce autophagic clearance of *S. enterica*.<sup>5</sup> It also binds to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) non-structural protein 13 (Nsp13), a helicase-triphosphatase and component of the viral replicase-transcriptase complex.<sup>6</sup> Cayman's TBK1 Monoclonal Antibody (Clone 4E6) can be used for ELISA, Immunohistochemistry (IHC), and Western blot (WB) applications. The antibody recognizes TBK1 at approximately 84 kDa.

## References

1. Rajasagi, N.K., Reddy, P.B.J., Suryawanshi, A., *et al.* Controlling herpes simplex virus-induced ocular inflammatory lesions with the lipid-derived mediator resolvins E1. *J. Immunol.* **186**(3), 1735-1746 (2011).
2. Tanaka, Y. and Chen, Z.J. STING specifies IRF3 phosphorylation by TBK1 in the cytosolic DNA signaling pathway. *Sci. Signal* **5**(214), ra20 (2012).
3. Tojima, Y., Fujimoto, A., Delhase, M., *et al.* NAK is an I $\kappa$ B kinase-activating kinase. *Nature* **404**(6779), 778-782 (2000).
4. Radtke, A.L., Delbridge, L.M., Balachandran, S., *et al.* TBK1 protects vacuolar integrity during intracellular bacterial infection. *PLoS Pathog.* **3**(3), e29 (2007).
5. Wild, P., Farhan, H., McEwan, D.G., *et al.* Phosphorylation of the autophagy receptor optineurin restricts *Salmonella* growth. *Science* **333**(6039), 228-233 (2011).
6. Gordon, D.E., Jang, G.M., Bouhaddou, M., *et al.* A SARS-CoV-2-human protein-protein interaction map reveals drug targets and potential drug-repurposing. *BioRxiv* (2020).

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