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Produktinformation

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- Diagnostik & molekulare Diagnostik
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Lieferung & Zahlungsart

siehe unsere Liefer- und Versandbedingungen

Zuschläge

- Mindermengenzuschlag
- Trockeneiszuschlag
- Gefahrgutzuschlag
- Expressversand

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PRODUCT INFORMATION

TBK1 (human, recombinant)

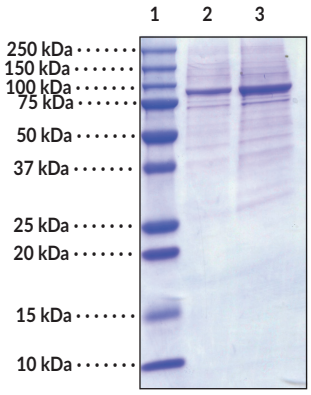
Item No. 22817

Overview and Properties

Synonyms:	NAK, NF-κB-Activating Kinase, TANK-Binding Kinase 1
Source:	Human recombinant protein expressed in insect cells (baculovirus)
Amino acids:	1-729 (full length)
Uniprot No.:	Q9UHD2
Molecular Weight:	84 kDa
Storage:	-80°C (as supplied)
Stability:	≥1 year
Purity:	***batch specific*** (≥50% estimated by SDS-PAGE)
Supplied in:	50 mM HEPES, pH 8.0, with 150 mM sodium chloride, and 10% glycerol
Protein Concentration:	***batch specific*** mg/ml
Activity:	ATPase activity confirmed by ADP detection assay

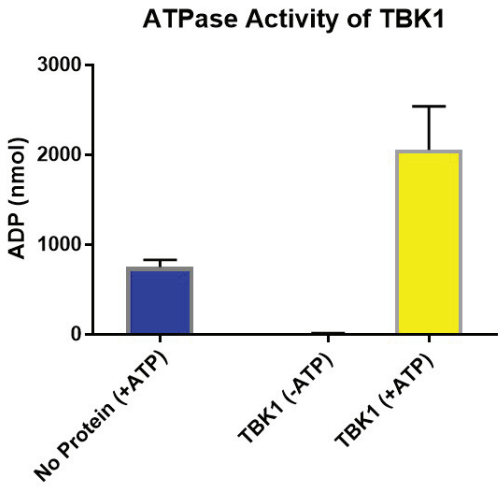
Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Images



Lane 1: MW Markers
Lane 2: TBK1 (2 µg)
Lane 3: TBK1 (4 µg)

Representative gel image shown; actual purity may vary between batches.



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PRODUCT INFORMATION

Description

TANK-binding kinase 1 (TBK1) is a non-canonical inhibitor of NF-κB kinase (IKK) that has an essential role in regulating inflammatory responses to pathogens.[1] 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 α and β.[1,2] TBK1 induces nuclear translocation of NF-κB to initiate a pro-inflammatory response *via* phosphorylation of NF-κB inhibitor α (NFκBIα), IKKβ, or NF-κB p65 subunit (RelA).[3] Cytosolic localization of *E. coli*, *Salmonella*, and *S. pyogenes* increases in *TBK1*$^{-/-}$ murine embryonic fibroblasts, macrophages, and epithelial cells, suggesting TBK1 maintains vacuolar integrity, which is critical to bacterial clearance.[4] 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*.[5] It also binds to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) non-structural protein 13 (Nsp13), a helicase-triphosphatase and a component of the viral replicase-transcriptase complex.[6] Cayman's TBK1 (human, recombinant) protein can be used for ELISA, Western blot and enzymatic assays.

References

1. Pomerantz, J.L. and Baltimore, D. NF-kB activation by a signaling complex containing TRAF2, TANK and TBK1, a novel IKK-related kinase. *EMBO J.* **18(23)**, 6694-6704 (1999).
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 IkB kinase-activating kinase. *Nature* **404**, 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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