Datasheet for ABIN3095864

# TBK1 Protein (AA 1-729) (Strep Tag)

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## Overview

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| Quantity: | 250 µg |
| Target: | TBK1 |
| Protein Characteristics: | AA 1-729 |
| Origin: | Human |
| Source: | Cell-free protein synthesis (CFPS) |
| Protein Type: | Recombinant |
| Purification tag / Conjugate: | This TBK1 protein is labelled with Strep Tag. |
| Application: | Western Blotting (WB), SDS-PAGE (SDS), ELISA |

## Product Details

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| Brand: | AliCE® |
| Sequence: | MQSTSNHLWL LSDILGQGAT ANVFRGRHKK TGDLFAIKVF NNISFLRPVD VQMREFEVLK KLNHKNIVKL FAIEEETTTR HKVLIMEFCP CGSLYTVLEE PSNAYGLPES EFLIVLRDVV GGMNHLRENG IVHRDIKPGN IMRVIGEDGQ SVYKLTDFGA ARELEDDEQF VSLYGTEEYL HPDMYERAVL RKDHQKKYGA TVDLWSIGVT FYHAATGSLP FRPFEGPRRN KEVMYKIITG KPSGAISGVQ KAENGPIDWS GDMPVSCSLS RGLQVLLTPV LANILEADQE KCWGFDQFFA ETSDILHRMV IHVFSLQQMT AHKIYIHSYN TATIFHELVY KQTKIISSNQ ELIYEGRRLV LEPGRLAQHF PKTTEENPIF VVSREPLNTI GLIYEKISLP KVHPRYDLDG DASMAKAITG VVCYACRIAS TLLLYQELMR KGIRWLIELI KDDYNETVHK KTEVVITLDF CIRNIEKTVK VYEKLMKINL EAAELGEISD IHTKLLRLSS SQGTIETSLQ DIDSRLSPGG SLADAWAHQE GTHPKDRNVE KLQVLLNCMT EIYYQFKKDK AERRLAYNEE QIHKFDKQKL YYHATKAMTH FTDECVKKYE AFLNKSEEWI RKMLHLRKQL LSLTNQCFDI EEEVSKYQEY TNELQETLPQ |

KMFTASSGIK HTMTPIYPSS NTLVEMTLGM KKLKEEMEGV VKELAENNHI LERFGSLTMD GGLRNVDCL

**Sequence without tag. The proposed Strep-Tag is based on experience s with the expression system, a different complexity of the protein could make another tag necessary. In case you have a special request, please contact us.**

Characteristics:

Key Benefits:

- Made in Germany - from design to production - by highly experienced protein experts.
- Protein expressed with ALiCE® and purified in one-step affinity chromatography
- These proteins are normally active (enzymatically functional) as our customers have reported (not tested by us and not guaranteed).
- State-of-the-art algorithm used for plasmid design (Gene synthesis).

This protein is a **made-to-order protein** and will be made for the first time for your order. Our experts in the lab try to ensure that you receive soluble protein.

The big advantage of ordering our **made-to-order proteins** in comparison to ordering custom made proteins from other companies is that there is no financial obligation in case the protein cannot be expressed or purified.

Expression System:

- ALiCE®, our Almost Living Cell-Free Expression System is based on a lysate obtained from Nicotiana tabacum c.v.. This contains all the protein expression machinery needed to produce even the most difficult-to-express proteins, including those that require post-translational modifications.
- During lysate production, the cell wall and other cellular components that are not required for protein production are removed, leaving only the protein production machinery and the mitochondria to drive the reaction. During our lysate completion steps, the additional components needed for protein production (amino acids, cofactors, etc.) are added to produce something that functions like a cell, but without the constraints of a living system - all that's needed is the DNA that codes for the desired protein!

Concentration:

- The concentration of our recombinant proteins is measured using the absorbance at 280nm.
- The protein's absorbance will be measured against its specific reference buffer.
- We use the Expasy's ProtParam tool to determine the absorption coefficient of each protein.

Purification:

One-step Strep-tag purification of proteins expressed in Almost Living Cell-Free Expression System (AliCE®).

## Product Details

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| Purity: | > 70-80 % as determined by SDS PAGE, Western Blot and analytical SEC (HPLC). |
| Grade: | custom-made |

## Target Details

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| Target: | TBK1 |
| Alternative Name: | TBK1 (TBK1 Products) |
| Background: | Serine/threonine-protein kinase TBK1 (EC 2.7.11.1) (NF-kappa-B-activating kinase) (T2K) (TANK-binding kinase 1),FUNCTION: Serine/threonine kinase that plays an essential role in regulating inflammatory responses to foreign agents (PubMed:12692549, PubMed:14703513, PubMed:18583960, PubMed:12702806, PubMed:15367631, PubMed:10581243, PubMed:11839743, PubMed:15485837, PubMed:21138416, PubMed:25636800, PubMed:23453971, PubMed:23453972, PubMed:23746807, PubMed:26611359, PubMed:32404352). 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:14703513, PubMed:18583960, PubMed:12702806, PubMed:15367631, 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). 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 |

## Target Details

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| | and GABARAPL2, thereby preventing their delipidation and premature removal from nascent autophagosomes (PubMed:31709703). Phosphorylates and activates AKT1 (PubMed:21464307). Seems to play a role in energy balance regulation by sustaining a state of chronic, low-grade inflammation in obesity, wich 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). {ECO:0000250\|UniProtKB:Q9WUN2, ECO:0000269\|PubMed:10581243, ECO:0000269\|PubMed:10783893, ECO:0000269\|PubMed:11839743, ECO:0000269\|PubMed:12692549, ECO:0000269\|PubMed:12702806, ECO:0000269\|PubMed:14703513, ECO:0000269\|PubMed:15367631, ECO:0000269\|PubMed:15485837, ECO:0000269\|PubMed:15489227, ECO:0000269\|PubMed:16155125, ECO:0000269\|PubMed:18583960, ECO:0000269\|PubMed:21138416, ECO:0000269\|PubMed:21270402, ECO:0000269\|PubMed:21464307, ECO:0000269\|PubMed:21617041, ECO:0000269\|PubMed:21931631, ECO:0000269\|PubMed:22851595, ECO:0000269\|PubMed:23453971, ECO:0000269\|PubMed:23453972, ECO:0000269\|PubMed:23746807, ECO:0000269\|PubMed:25636800, ECO:0000269\|PubMed:26611359, ECO:0000269\|PubMed:27103069, ECO:0000269\|PubMed:29150432, ECO:0000269\|PubMed:30842653, ECO:0000269\|PubMed:31530866, ECO:0000269\|PubMed:31709703, ECO:0000269\|PubMed:32972995}. |
| Molecular Weight: | 83.6 kDa |
| UniProt: | Q9UHD2 |
| Pathways: | TLR Signaling, Activation of Innate immune Response, Hepatitis C, Toll-Like Receptors Cascades, SARS-CoV-2 Protein Interactome |

## Application Details

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| Application Notes: | In addition to the applications listed above we expect the protein to work for functional studies |

## Application Details

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| | as well. As the protein has not been tested for functional studies yet we cannot offer a guarantee though. |
| Comment: | ALiCE®, our Almost Living Cell-Free Expression System is based on a lysate obtained from Nicotiana tabacum c.v.. This contains all the protein expression machinery needed to produce even the most difficult-to-express proteins, including those that require post-translational modifications.<br>During lysate production, the cell wall and other cellular components that are not required for protein production are removed, leaving only the protein production machinery and the mitochondria to drive the reaction. During our lysate completion steps, the additional components needed for protein production (amino acids, cofactors, etc.) are added to produce something that functions like a cell, but without the constraints of a living system - all that's needed is the DNA that codes for the desired protein! |
| Restrictions: | For Research Use only |

## Handling

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| Format: | Liquid |
| Buffer: | The buffer composition is at the discretion of the manufacturer.<br>Standard Storage Buffer: PBS pH 7.4, 10 % Glycerol **Might differ depending on protein.** |
| Handling Advice: | Avoid repeated freeze-thaw cycles. |
| Storage: | -80 °C |
| Storage Comment: | Store at -80°C. |
| Expiry Date: | 12 months |