

Datasheet for ABIN3091648

## CHEK1 Protein (AA 1-476) (Strep Tag)



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### Overview

Quantity:	250 µg
Target:	CHEK1
Protein Characteristics:	AA 1-476
Origin:	Human
Source:	Cell-free protein synthesis (CFPS)
Protein Type:	Recombinant
Purification tag / Conjugate:	This CHEK1 protein is labelled with Strep Tag.
Application:	Western Blotting (WB), SDS-PAGE (SDS), ELISA

### Product Details

Brand:	AliCE®
Sequence:	<p>MAVPFVEDWD LVQTLGEGAY GEVQLAVNRV TEEAVAVKIV DMKRAVDCPE NIKKEICINK  MLNHENVVKF YGHRREGNIQ YLFLEYCSGG ELFDRIEPI GMPEPDAQRF FHQLMAGVVY  LHGIGITHRD IKPENLLLDE RDNLKISDFG LATVFRYNNR ERLNKMCGT LPYVAPELLK  RREFHAEPVD VWSCGIVLTA MLAGELPWDQ PSDSCQEYSD WKEKKTYNP WKKIDSAPLA  LLHKILVENP SARITIPDIK KDRWYNKPLK KGAKRPRVTS GGVSESPSGF SKHIQSNLDF  SPVNSASSEE NVKYSSSQPE PRTGLSLWDT SPSYIDKLQV GISFSQPTCP DHMLLSQLL  GTPGSSQNPW QRLVKRMTRF FTKLDADKSY QCLKETCEKL GYQWKKSCMN QVTISTDRR  NNKLIFKVN LEMDDKILVD FRLSKGDGLE FKRHFLKIKG KLIDIVSSQK IWL PAT</p> <p><b>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.</b></p>

# Product Details

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Characteristics:	<div>Key Benefits:</div> <ul style="list-style-type: none"><li>• Made in Germany - from design to production - by highly experienced protein experts.</li><li>• Protein expressed with ALiCE® and purified in one-step affinity chromatography</li><li>• These proteins are normally active (enzymatically functional) as our customers have reported (not tested by us and not guaranteed).</li><li>• State-of-the-art algorithm used for plasmid design (Gene synthesis).</li></ul> <p>This protein is a <b>made-to-order protein</b> and will be made for the first time for your order. Our experts in the lab try to ensure that you receive soluble protein.</p> <p>The big advantage of ordering our <b>made-to-order proteins</b> 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.</p> <div>Expression System:</div> <ul style="list-style-type: none"><li>• ALiCE®, our Almost Living Cell-Free Expression System is based on a lysate obtained from <i>Nicotiana tabacum</i> 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.</li><li>• 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!</li></ul> <div>Concentration:</div> <ul style="list-style-type: none"><li>• The concentration of our recombinant proteins is measured using the absorbance at 280nm.</li><li>• The protein's absorbance will be measured against its specific reference buffer.</li><li>• We use the ExPASy's ProtParam tool to determine the absorption coefficient of each protein.</li></ul>
Purification:	One-step Strep-tag purification of proteins expressed in Almost Living Cell-Free Expression System (ALiCE®).
Purity:	> 70-80 % as determined by SDS PAGE, Western Blot and analytical SEC (HPLC).
Grade:	custom-made

## Target Details

Target:	CHEK1
Alternative Name:	CHEK1 ( <a href="#">CHEK1 Products</a> )
Background:	<p>Serine/threonine-protein kinase Chk1 (EC 2.7.11.1) (CHK1 checkpoint homolog) (Cell cycle checkpoint kinase) (Checkpoint kinase-1),FUNCTION: Serine/threonine-protein kinase which is required for checkpoint-mediated cell cycle arrest and activation of DNA repair in response to the presence of DNA damage or unreplicated DNA (PubMed:11535615, PubMed:12446774, PubMed:12399544, PubMed:14559997, PubMed:14988723, PubMed:15311285, PubMed:15665856, PubMed:15650047, PubMed:32357935). May also negatively regulate cell cycle progression during unperturbed cell cycles (PubMed:11535615, PubMed:12446774, PubMed:12399544, PubMed:14559997, PubMed:14988723, PubMed:15311285, PubMed:15665856, PubMed:15650047). This regulation is achieved by a number of mechanisms that together help to preserve the integrity of the genome (PubMed:11535615, PubMed:12446774, PubMed:12399544, PubMed:14559997, PubMed:14988723, PubMed:15311285, PubMed:15665856, PubMed:15650047). Recognizes the substrate consensus sequence [R-X-X-S/T] (PubMed:11535615, PubMed:12446774, PubMed:12399544, PubMed:14559997, PubMed:14988723, PubMed:15311285, PubMed:15665856, PubMed:15650047). Binds to and phosphorylates CDC25A, CDC25B and CDC25C (PubMed:9278511, PubMed:12676583, PubMed:14681206, PubMed:12676925, PubMed:12759351, PubMed:19734889, PubMed:14559997). Phosphorylation of CDC25A at 'Ser-178' and 'Thr-507' and phosphorylation of CDC25C at 'Ser-216' creates binding sites for 14-3-3 proteins which inhibit CDC25A and CDC25C (PubMed:9278511). Phosphorylation of CDC25A at 'Ser-76', 'Ser-124', 'Ser-178', 'Ser-279' and 'Ser-293' promotes proteolysis of CDC25A (PubMed:9278511, PubMed:12676583, PubMed:14681206, PubMed:12676925, PubMed:12759351, PubMed:19734889). Phosphorylation of CDC25A at 'Ser-76' primes the protein for subsequent phosphorylation at 'Ser-79', 'Ser-82' and 'Ser-88' by NEK11, which is required for polyubiquitination and degradation of CDC25A (PubMed:9278511, PubMed:19734889, PubMed:20090422). Inhibition of CDC25 leads to increased inhibitory tyrosine phosphorylation of CDK-cyclin complexes and blocks cell cycle progression (PubMed:9278511). Also phosphorylates NEK6 (PubMed:18728393). Binds to and phosphorylates RAD51 at 'Thr-309', which promotes the release of RAD51 from BRCA2 and enhances the association of RAD51 with chromatin, thereby promoting DNA repair by homologous recombination (PubMed:15665856). Phosphorylates multiple sites within the C-terminus of TP53, which promotes activation of TP53 by acetylation and promotes cell cycle arrest and suppression of cellular proliferation (PubMed:10673501, PubMed:15659650, PubMed:16511572). Also promotes repair of DNA cross-links through phosphorylation of</p>

FANCE (PubMed:17296736). Binds to and phosphorylates TLK1 at 'Ser-743', which prevents the TLK1-dependent phosphorylation of the chromatin assembly factor ASF1A (PubMed:12660173, PubMed:12955071). This may enhance chromatin assembly both in the presence or absence of DNA damage (PubMed:12660173, PubMed:12955071). May also play a role in replication fork maintenance through regulation of PCNA (PubMed:18451105). May regulate the transcription of genes that regulate cell-cycle progression through the phosphorylation of histones (By similarity). Phosphorylates histone H3.1 (to form H3T11ph), which leads to epigenetic inhibition of a subset of genes (By similarity). May also phosphorylate RB1 to promote its interaction with the E2F family of transcription factors and subsequent cell cycle arrest (PubMed:17380128). Phosphorylates SPRTN, promoting SPRTN recruitment to chromatin (PubMed:31316063). Reduces replication stress and activates the G2/M checkpoint, by phosphorylating and inactivating PABIR1/FAM122A and promoting the serine/threonine-protein phosphatase 2A-mediated dephosphorylation and stabilization of WEE1 levels and activity (PubMed:33108758). {ECO:0000250|UniProtKB:O35280, ECO:0000269|PubMed:10673501, ECO:0000269|PubMed:11535615, ECO:0000269|PubMed:12399544, ECO:0000269|PubMed:12446774, ECO:0000269|PubMed:12660173, ECO:0000269|PubMed:12676583, ECO:0000269|PubMed:12676925, ECO:0000269|PubMed:12759351, ECO:0000269|PubMed:12955071, ECO:0000269|PubMed:14559997, ECO:0000269|PubMed:14681206, ECO:0000269|PubMed:14988723, ECO:0000269|PubMed:15311285, ECO:0000269|PubMed:15650047, ECO:0000269|PubMed:15659650, ECO:0000269|PubMed:15665856, ECO:0000269|PubMed:16511572, ECO:0000269|PubMed:17296736, ECO:0000269|PubMed:17380128, ECO:0000269|PubMed:18451105, ECO:0000269|PubMed:18728393, ECO:0000269|PubMed:19734889, ECO:0000269|PubMed:20090422, ECO:0000269|PubMed:31316063, ECO:0000269|PubMed:32357935, ECO:0000269|PubMed:33108758, ECO:0000269|PubMed:9278511}., FUNCTION: [Isoform 2]: Endogenous repressor of isoform 1, interacts with, and antagonizes CHK1 to promote the S to G2/M phase transition. {ECO:0000269|PubMed:22184239}.

Molecular Weight: 54.4 kDa

UniProt: [O14757](#)

Pathways: [p53 Signaling](#), [Apoptosis](#), [Cell Division Cycle](#), [DNA Damage Repair](#)

## Application Details

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

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

**Format:** Liquid

**Buffer:** The buffer composition is at the discretion of the manufacturer.  
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