Datasheet for ABIN3096003

TOPBP1 Protein (AA 1-1522) (Strep Tag)

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Overview

Quantity:	1 mg
Target:	TOPBP1
Protein Characteristics:	AA 1-1522
Origin:	Human
Source:	Tobacco (Nicotiana tabacum)
Protein Type:	Recombinant
Purification tag / Conjugate:	This TOPBP1 protein is labelled with Strep Tag.
Application:	Western Blotting (WB), SDS-PAGE (SDS), ELISA

Product Details

Sequence:	MSRNDKEPFF VKFLKSSDNS KCFFKALESI KEFQSEEYLQ IITEEEALKI KENDRSLYIC DPFSGVVFDH LKKLGCRIVG PQVVIFCMHH QRCVPRAEHP VYNMVMSDVT ISCTSLEKEK REEVHKYVQM MGGRVYRDLN VSVTHLIAGE VGSKKYLVAA NLKKPILLPS WIKTLWEKSQ EKKITRYTDI NMEDFKCPIF LGCIICVTGL CGLDRKEVQQ LTVKHGGQYM GQLKMNECTH LIVQEPKGQK YECAKRWNVH CVTTQWFFDS IEKGFCQDES IYKTEPRPEA KTMPNSSTPT SQINTIDSRT LSDVSNISNI NASCVSESIC NSLNSKLEPT LENLENLDVS AFQAPEDLLD GCRIYLCGFS GRKLDKLRRL INSGGGVRFN QLNEDVTHVI VGDYDDELKQ FWNKSAHRPH VVGAKWLLEC FSKGYMLSEE PYIHANYQPV EIPVSHKPES KAALLKKKNS SFSKKDFAPS EKHEQADEDL LSQYENGSST VVEAKTSEAR PFNDSTHAEP LNDSTHISLQ EENQSSVSHC VPDVSTITEE GLFSQKSFLV LGFSNENESN IANIIKENAG KIMSLLSRTV ADYAVVPLLG CEVEATVGEV VTNTWLVTCI DYQTLFDPKS NPLFTPVPVM TGMTPLEDCV ISFSQCAGAE KESLTFLANL LGASVQEYFV RKSNAKKGMF ASTHLILKER GGSKYEAAKK WNLPAVTIAW

LLETARTGKR ADESHFLIEN STKEERSLET EITNGINLNS DTAEHPGTRL QTHRKTVVTP LDMNRFQSKA FRAVVSQHAR QVAASPAVGQ PLQKEPSLHL DTPSKFLSKD KLFKPSFDVK DALAALETPG RPSQQKRKPS TPLSEVIVKN LQLALANSSR NAVALSASPQ LKEAQSEKEE APKPLHKVVV CVSKKLSKKQ SELNGIAASL GADYRWSFDE TVTHFIYQGR PNDTNREYKS VKERGVHIVS EHWLLDCAQE CKHLPESLYP HTYNPKMSLD ISAVQDGRLC NSRLLSAVSS TKDDEPDPLI LEENDVDNMA TNNKESAPSN GSGKNDSKGV LTQTLEMREN FQKQLQEIMS ATSIVKPQGQ RTSLSRSGCN SASSTPDSTR SARSGRSRVL EALRQSRQTV PDVNTEPSQN EQIIWDDPTA REERARLASN LQWPSCPTQY SELQVDIQNL EDSPFQKPLH DSEIAKQAVC DPGNIRVTEA PKHPISEELE TPIKDSHLIP TPQAPSIAFP LANPPVAPHP REKIITIEET HEELKKQYIF QLSSLNPQER IDYCHLIEKL GGLVIEKQCF DPTCTHIVVG HPLRNEKYLA SVAAGKWVLH RSYLEACRTA GHFVQEEDYE WGSSSILDVL TGINVQQRRL ALAAMRWRKK IQQRQESGIV EGAFSGWKVI LHVDQSREAG FKRLLQSGGA KVLPGHSVPL FKEATHLFSD LNKLKPDDSG VNIAEAAAQN VYCLRTEYIA DYLMQESPPH VENYCLPEAI SFIQNNKELG TGLSQKRKAP TEKNKIKRPR VH

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 by multi-step, protein-specific process to ensure correct folding and modification.
- 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 will ensure that you receive a correctly folded 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.

Product Details

- 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 in several dilutions and is measured against its specific reference buffer.
- We use the Expasy's ProtParam tool to determine the absorption coefficient of each protein.

Purification:	Two step purification of proteins expressed in Almost Living Cell-Free Expression System (ALiCE®): 1. In a first purification step, the protein is purified from the cleared cell lysate using StrepTag capture material. Eluate fractions are analyzed by SDS-PAGE. 2. Protein containing fractions of the best purification are subjected to second purification step through size exclusion chromatography. Eluate fractions are analyzed by SDS-PAGE and Western blot.
Purity:	>80 % as determined by SDS PAGE, Size Exclusion Chromatography and Western Blot.
Endotoxin Level:	Low Endotoxin less than 1 EU/mg (< 0.1 ng/mg)
Grade:	Crystallography grade

Target Details

Target:	TOPBP1
Alternative Name:	TOPBP1 (TOPBP1 Products)
Background:	DNA topoisomerase 2-binding protein 1 (DNA topoisomerase II-beta-binding protein 1) (TopBP1) (DNA topoisomerase II-binding protein 1),FUNCTION: Scaffold protein that acts as a key protein-protein adapter in DNA replication and DNA repair (PubMed:10498869, PubMed:11395493, PubMed:11714696, PubMed:17575048, PubMed:20545769, PubMed:21777809, PubMed:26811421, PubMed:30898438, PubMed:33592542, PubMed:35597237, PubMed:37674080, PubMed:31135337). Composed of multiple BRCT domains, which specifically recognize and bind phosphorylated proteins, bringing proteins

together into functional combinations (PubMed:17575048, PubMed:20545769, PubMed:21777809, PubMed:26811421, PubMed:30898438, PubMed:35597237, PubMed:37674080, PubMed:31135337). Required for DNA replication initiation but not for the formation of pre-replicative complexes or the elongation stages (By similarity). Necessary for the loading of replication factors onto chromatin, including GMNC, CDC45, DNA polymerases and components of the GINS complex (By similarity). Plays a central role in DNA repair by bridging proteins and promoting recruitment of proteins to DNA damage sites (PubMed:30898438, PubMed:35597237, PubMed:37674080). Involved in double-strand break (DSB) repair via homologous recombination in S-phase by promoting the exchange between the DNA replication factor A (RPA) complex and RAD51 (PubMed:26811421, PubMed:35597237). Mechanistically, TOPBP1 is recruited to DNA damage sites in S-phase via interaction with phosphorylated HTATSF1, and promotes the loading of RAD51, thereby facilitating RAD51 nucleofilaments formation and RPA displacement, followed by homologous recombination (PubMed:35597237). Involved in microhomology-mediated end-joining (MMEJ) DNA repair by promoting recruitment of polymerase theta (POLQ) to DNA damage sites during mitosis (PubMed:37674080). MMEJ is an alternative non-homologous end-joining (NHEJ) machinery that takes place during mitosis to repair DSBs in DNA that originate in S-phase (PubMed:37674080). Recognizes and binds POLQ phosphorylated by PLK1, enabling its recruitment to DSBs for subsequent repair (PubMed:37674080). Involved in G1 DNA damage checkpoint by acting as a molecular adapter that couples TP53BP1 and the 9-1-1 complex (PubMed:31135337). In response to DNA damage, triggers the recruitment of checkpoint signaling proteins on chromatin, which activate the CHEK1 signaling pathway and block S-phase progression (PubMed:16530042, PubMed:21777809). Acts as an activator of the kinase activity of ATR (PubMed:16530042, PubMed:21777809). Also required for chromosomal stability when DSBs occur during mitosis by forming filamentous assemblies that bridge MDC1 and tether broken chromosomes during mitosis (PubMed:30898438). Together with CIP2A, plays an essential role in the response to genome instability generated by the presence of acentric chromosome fragments derived from shattered chromosomes within micronuclei (PubMed:35121901, PubMed:35842428, PubMed:37165191, PubMed:37316668). Micronuclei, which are frequently found in cancer cells, consist of chromatin surrounded by their own nuclear membrane: following breakdown of the micronuclear envelope, a process associated with chromothripsis, the CIP2A-TOPBP1 complex tethers chromosome fragments during mitosis to ensure clustered segregation of the fragments to a single daughter cell nucleus, facilitating re-ligation with limited chromosome scattering and loss (PubMed:37165191, PubMed:37316668). Recruits the SWI/SNF chromatin remodeling complex to E2F1-responsive promoters, thereby down-regulating E2F1 activity and inhibiting E2F1-dependent apoptosis

Target Details

	during G1/S transition and after DNA damage (PubMed:12697828, PubMed:15075294). {ECO:0000250|UniProtKB:Q800K6, ECO:0000269|PubMed:10498869, ECO:0000269|PubMed:11395493, ECO:0000269|PubMed:11714696, ECO:0000269|PubMed:12697828, ECO:0000269|PubMed:15075294, ECO:0000269|PubMed:16530042, ECO:0000269|PubMed:17575048, ECO:0000269|PubMed:20545769, ECO:0000269|PubMed:21777809, ECO:0000269|PubMed:26811421, ECO:0000269|PubMed:30898438, ECO:0000269|PubMed:31135337, ECO:0000269|PubMed:33592542, ECO:0000269|PubMed:35121901, ECO:0000269|PubMed:35597237, ECO:0000269|PubMed:35842428, ECO:0000269|PubMed:37165191, ECO:0000269|PubMed:37316668, ECO:0000269|PubMed:37674080}.
Molecular Weight:	170.7 kDa
UniProt:	Q92547
Pathways:	Chromatin Binding

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

Handling

Buffer:	The buffer composition is at the discretion of the manufacturer. If you have a special request, please contact us.
Handling Advice:	Avoid repeated freeze-thaw cycles.
Storage:	-80 °C
Storage Comment:	Store at -80°C.
Expiry Date:	Unlimited (if stored properly)

