Datasheet for ABIN3094175

NLRP1 Protein (AA 1-1473) (Strep Tag)

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Overview

Quantity:	250 µg
Target:	NLRP1
Protein Characteristics:	AA 1-1473
Origin:	Human
Source:	Cell-free protein synthesis (CFPS)
Protein Type:	Recombinant
Purification tag / Conjugate:	This NLRP1 protein is labelled with Strep Tag.
Application:	ELISA, SDS-PAGE (SDS), Western Blotting (WB)

Product Details

Brand:	AliCE®
Sequence:	MAGGAWGRLA CYLEFLKKEE LKEFQLLLAN KAHSRSSSGE TPAQPEKTSG MEVASYLVAQ YGEQRAWDLA LHTWEQMGLR SLCAQAQEGA GHSPSFPYSP SEPHLGSPSQ PTSTAVLMPW IHELPAGCTQ GSERRVLRQL PDTSGRRWRE ISASLLYQAL PSSPDHESPS QESPNAPTST AVLGSWGSPP QPSLAPREQE APGTQWPLDE TSGIYYTEIR ERE REKSEKG RPPWAAVVGT PPQAHTSLQP HHHPWEPSVR ESLCSTWPWK NEDFNQKFTQ LLLLQRPHPR SQDPLVKRSW PDYVEENRGH LIEIRDLFGP GLDTQEPRIV ILQGAAGIGK STLARQVKEA WGRGQLYGDR FQHVFYFSCR ELAQSKVVSL AELIGKDGTA TPAPIRQILS RPERLLFILD GVDEPGWVLQ EPSSELCLHW SQPQPADALL GSLLGKTILP EASFLITART TALQNLIPSL EQARWVEVLG FSESSRKEYF YRYFTDERQA IRAFRLVKSN KELWALCLVP WVSWLACTCL MQQMKRKEKL TLTSKTTTTL CLHYLAQALQ AQPLGPQLRD LCSLAAEGIW QKKTLFSPDD LRKHGLDGAI ISTFLKMGIL QEHPIPLSYS FIHLCFQEFF AAMSYVLEDE KGRGKHSNCI IDLEKTLEAY

GIHGLFGAST TRFLLGLLSD EGEREMENIF HCRLSQGRNL MQWVPSLQLL LQPHSLESLH CLYETRNKTF LTQVMAHFEE MGMCVETDME LLVCTFCIKF SRHVKKLQLI EGRQHRSTWS PTMVVLFRWV PVTDAYWQIL FSVLKVTRNL KELDLSGNSL SHSAVKSLCK TLRRPRCLLE TLRLAGCGLT AEDCKDLAFG LRANQTLTEL DLSFNVLTDA GAKHLCQRLR QPSCKLQRLQ LVSCGLTSDC CQDLASVLSA SPSLKELDLQ QNNLDDVGVR LLCEGLRHPA CKLIRLGLDQ TTLSDEMRQE LRALEQEKPQ LLIFSRRKPS VMTPTEGLDT GEMSNSTSSL KRQRLGSERA ASHVAQANLK LLDVSKIFPI AEIAEESSPE VVPVELLCVP SPASQGDLHT KPLGTDDDFW GPTGPVATEV VDKEKNLYRV HFPVAGSYRW PNTGLCFVMR EAVTVEIEFC VWDQFLGEIN PQHSWMVAGP LLDIKAEPGA VEAVHLPHFV ALQGGHVDTS LFQMAHFKEE GMLLEKPARV ELHHIVLENP SFSPLGVLLK MIHNALRFIP VTSVVLLYHR VHPEEVTFHL YLIPSDCSIR KAIDDLEMKF QFVRIHKPPP LTPLYMGCRY TVSGSGSGML EILPKELELC YRSPGEDQLF SEFYVGHLGS GIRLQVKDKK DETLVWEALV KPGDLMPATT LIPPARIAVP SPLDAPQLLH FVDQYREQLI ARVTSVEVVL DKLHGQVLSQ EQYERVLAEN TRPSQMRKLF SLSQSWDRKC KDGLYQALKE THPHLIMELW EKGSKKGLLP LSS

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

Product Details

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

Target Details

Target:	NLRP1
Alternative Name:	NLRP1 (NLRP1 Products)
Background:	NACHT, LRR and PYD domains-containing protein 1 (EC 3.4.-.-) (EC 3.6.4.-) (Caspase recruitment domain-containing protein 7) (Death effector filament-forming ced-4-like apoptosis protein) (Nucleotide-binding domain and caspase recruitment domain) [Cleaved into: NACHT, LRR and PYD domains-containing protein 1, C-terminus (NLRP1-CT), NACHT, LRR and PYD domains-containing protein 1, N-terminus (NLRP1-NT)],FUNCTION: Acts as the sensor component of the NLRP1 inflammasome, which mediates inflammasome activation in response to various pathogen-associated signals, leading to subsequent pyroptosis (PubMed:22665479, PubMed:12191486, PubMed:17349957, PubMed:27662089, PubMed:31484767, PubMed:33093214, PubMed:33410748, PubMed:33731929, PubMed:33731932, PubMed:35857590). Inflammasomes are supramolecular complexes that assemble in the cytosol in response to pathogens and other damage-associated signals and play critical roles in innate immunity and inflammation (PubMed:22665479, PubMed:12191486, PubMed:17349957). Acts as a recognition receptor (PRR): recognizes specific pathogens and other damage-associated signals, such as cleavage by some human enteroviruses and rhinoviruses, double-stranded RNA, UV-B irradiation, or Val-boroPro inhibitor, and mediates the

formation of the inflammasome polymeric complex composed of NLRP1, CASP1 and PYCARD/ASC (PubMed:22665479, PubMed:12191486, PubMed:17349957, PubMed:25562666, PubMed:30291141, PubMed:30096351, PubMed:33243852, PubMed:33093214, PubMed:33410748, PubMed:35857590). In response to pathogen-associated signals, the N-terminal part of NLRP1 is degraded by the proteasome, releasing the cleaved C-terminal part of the protein (NACHT, LRR and PYD domains-containing protein 1, C-terminus), which polymerizes and associates with PYCARD/ASC to initiate the formation of the inflammasome complex: the NLRP1 inflammasome recruits pro-caspase-1 (proCASP1) and promotes caspase-1 (CASP1) activation, which subsequently cleaves and activates inflammatory cytokines IL1B and IL18 and gasdermin-D (GSDMD), leading to pyroptosis (PubMed:22665479, PubMed:12191486, PubMed:17349957, PubMed:32051255, PubMed:33093214). In the absence of GSDMD expression, the NLRP1 inflammasome is able to recruit and activate CASP8, leading to activation of gasdermin-E (GSDME) (PubMed:33852854, PubMed:35594856). Activation of NLRP1 inflammasome is also required for HMGB1 secretion, the active cytokines and HMGB1 stimulate inflammatory responses (PubMed:22801494). Binds ATP and shows ATPase activity (PubMed:11113115, PubMed:15212762, PubMed:33243852). Plays an important role in antiviral immunity and inflammation in the human airway epithelium (PubMed:33093214). Specifically recognizes a number of pathogen-associated signals: upon infection by human rhinoviruses 14 and 16 (HRV-14 and HRV-16), NLRP1 is cleaved and activated which triggers NLRP1-dependent inflammasome activation and IL18 secretion (PubMed:33093214). Positive-strand RNA viruses, such as Semliki forest virus and long dsRNA activate the NLRP1 inflammasome, triggering IL1B release in a NLRP1-dependent fashion (PubMed:33243852). Acts as a direct sensor for long dsRNA and thus RNA virus infection (PubMed:33243852). May also be activated by muramyl dipeptide (MDP), a fragment of bacterial peptidoglycan, in a NOD2-dependent manner (PubMed:18511561). The NLRP1 inflammasome is also activated in response to UV-B irradiation causing ribosome collisions: ribosome collisions cause phosphorylation and activation of NLRP1 in a MAP3K20-dependent manner, leading to pyroptosis (PubMed:35857590). {ECO:0000269|PubMed:11113115, ECO:0000269|PubMed:12191486, ECO:0000269|PubMed:15212762, ECO:0000269|PubMed:17349957, ECO:0000269|PubMed:18511561, ECO:0000269|PubMed:22665479, ECO:0000269|PubMed:22801494, ECO:0000269|PubMed:25562666, ECO:0000269|PubMed:27662089, ECO:0000269|PubMed:30096351, ECO:0000269|PubMed:30291141, ECO:0000269|PubMed:31484767, ECO:0000269|PubMed:32051255, ECO:0000269|PubMed:33093214, ECO:0000269|PubMed:33243852, ECO:0000269|PubMed:33410748, ECO:0000269|PubMed:33731929,

	ECO:0000269|PubMed:33731932, ECO:0000269|PubMed:33852854, ECO:0000269|PubMed:35594856, ECO:0000269|PubMed:35857590}., FUNCTION: [NACHT, LRR and PYD domains-containing protein 1]: Constitutes the precursor of the NLRP1 inflammasome, which mediates autoproteolytic processing within the FIIND domain to generate the N-terminal and C-terminal parts, which are associated non-covalently in absence of pathogens and other damage-associated signals. {ECO:0000269|PubMed:22087307}., FUNCTION: [NACHT, LRR and PYD domains-containing protein 1, N-terminus]: Regulatory part that prevents formation of the NLRP1 inflammasome: in absence of pathogens and other damage-associated signals, interacts with the C-terminal part of NLRP1 (NACHT, LRR and PYD domains-containing protein 1, C-terminus), preventing activation of the NLRP1 inflammasome (PubMed:33093214). In response to pathogen-associated signals, this part is ubiquitinated and degraded by the proteasome, releasing the cleaved C-terminal part of the protein, which polymerizes and forms the NLRP1 inflammasome (PubMed:33093214). {ECO:0000269|PubMed:33093214}., FUNCTION: [NACHT, LRR and PYD domains-containing protein 1, C-terminus]: Constitutes the active part of the NLRP1 inflammasome (PubMed:33093214, PubMed:33731929, PubMed:33731932). In absence of pathogens and other damage-associated signals, interacts with the N-terminal part of NLRP1 (NACHT, LRR and PYD domains-containing protein 1, N-terminus), preventing activation of the NLRP1 inflammasome (PubMed:33093214). In response to pathogen-associated signals, the N-terminal part of NLRP1 is degraded by the proteasome, releasing this form, which polymerizes and associates with PYCARD/ASC to form of the NLRP1 inflammasome complex: the NLRP1 inflammasome complex then directly recruits pro-caspase-1 (proCASP1) and promotes caspase-1 (CASP1) activation, leading to gasdermin-D (GSDMD) cleavage and subsequent pyroptosis (PubMed:33093214). {ECO:0000269|PubMed:33093214, ECO:0000269|PubMed:33731929, ECO:0000269|PubMed:33731932}., FUNCTION: [Isoform 2]: It is unclear whether is involved in inflammasome formation. It is not cleaved within the FIIND domain, does not assemble into specks, nor promote IL1B release (PubMed:22665479). However, in an vitro cell-free system, it has been shown to be activated by MDP (PubMed:17349957). {ECO:0000269|PubMed:17349957, ECO:0000269|PubMed:22665479}.
Molecular Weight:	165.9 kDa
UniProt:	Q9C000
Pathways:	Positive Regulation of Endopeptidase Activity, Inflammasome

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