Datasheet for ABIN3094225

NPAS2 Protein (AA 1-824) (Strep Tag)

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1 Image

Overview

Quantity:	1 mg
Target:	NPAS2
Protein Characteristics:	AA 1-824
Origin:	Human
Source:	Tobacco (Nicotiana tabacum)
Protein Type:	Recombinant
Purification tag / Conjugate:	This NPAS2 protein is labelled with Strep Tag.
Application:	ELISA, Western Blotting (WB), SDS-PAGE (SDS)

Product Details

Sequence:	MDEDEKDRAK RASRNKSEKK RRDQFNVLIK ELSSMLPGNT RKMDKTTVLE KVIGFLQKHN EVSAQTEICD IQQDWKPSFL SNEEFTQLML EALDGFIIAV TTDGSIIYVS DSITPLLGHL PSDVMDQNLL NFLPEQEHSE VYKILSSHML VTDSPSPEYL KSDSDLEFYC HLLRGSLNPK EFPTYEYIKF VGNFRSYNNV PSPSCNGFDN TLSRPCRVPL GKEVCFIATV RLATPQFLKE MCIVDEPLEE FTSRHSLEWK FLFLDHRAPP IIGYLPFEVL GTSGYDYYHI DDLELLARCH QHLMQFGKGK SCCYRFLTKG QQWIWLQTHY YITYHQWNSK PEFIVCTHSV VSYADVRVER RQELALEDPP SEALHSSALK DKGSSLEPRQ HFNTLDVGAS GLNTSHSPSA SSRSSHKSSH TAMSEPTSTP TKLMAEASTP ALPRSATLPQ ELPVPGLSQA ATMPAPLPSP SSCDLTQQLL PQTVLQSTPA PMAQFSAQFS MFQTIKDQLE QRTRILQANI RWQQEELHKI QEQLCLVQDS NVQMFLQQPA VSLSFSSTQR PEAQQQLQQR SAAVTQPQLG AGPQLPGQIS SAQVTSQHLL RESSVISTQG PKPMRSSQLM QSSGRSGSSL VSPFSSATAA LPPSLNLTTP ASTSQDASQC QPSPDFSHDR QLRLLLSQPI QPMMPGSCDA RQPSEVSRTG RQVKYAQSQT VFQNPDAHPA

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NSSSAPMPVL LMGQAVLHPS FPASQPSPLQ PAQARQQPPQ HYLQVQAPTS LHSEQQDSLL LSTYSQQPGT LGYPQPPPAQ PQPLRPPRRV SSLSESSGLQ QPPR

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.
- 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.

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Product Details

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:	NPAS2
Alternative Name:	NPAS2 (NPAS2 Products)
Background:	Neuronal PAS domain-containing protein 2 (Neuronal PAS2) (Basic-helix-loop-helix-PAS protein MOP4) (Class E basic helix-loop-helix protein 9) (bHLHe9) (Member of PAS protein 4) (PAS domain-containing protein 4),FUNCTION: Transcriptional activator which forms a core component of the circadian clock. The circadian clock, an internal time-keeping system, regulates various physiological processes through the generation of approximately 24 hour circadian rhythms in gene expression, which are translated into rhythms in metabolism and behavior. It is derived from the Latin roots 'circa' (about) and 'diem' (day) and acts as an important regulator of a wide array of physiological functions including metabolism, sleep, body temperature, blood pressure, endocrine, immune, cardiovascular, and renal function. Consists of two major components: the central clock, residing in the suprachiasmatic nucleus (SCN) of the brain, and the peripheral clocks that are present in nearly every tissue and organ system. Both the central and peripheral clocks can be reset by environmental cues, also known as Zeitgebers (German for 'timegivers'). The predominant Zeitgeber for the central clock is light, which is sensed by retina and signals directly to the SCN. The central clock entrains the peripheral clocks through neuronal and hormonal signals, body temperature and feeding-related cues, aligning all clocks with the external light/dark cycle. Circadian rhythms allow an organism to achieve temporal homeostasis with its environment at the molecular level by regulating gene expression to create a peak of protein expression once every 24 hours to control when a particular physiological process is most active with respect to the solar day. Transcription and translation of core clock components (CLOCK, NPAS2, BMAL1, BMAL2,

	PER1, PER2, PER3, CRY1 and CRY2) plays a critical role in rhythm generation, whereas delays imposed by post-translational modifications (PTMs) are important for determining the period (tau) of the rhythms (tau refers to the period of a rhythm and is the length, in time, of one complete cycle). A diurnal rhythm is synchronized with the day/night cycle, while the ultradian and infradian rhythms have a period shorter and longer than 24 hours, respectively. Disruptions in the circadian rhythms contribute to the pathology of cardiovascular diseases, cancer, metabolic syndromes and aging. A transcription/translation feedback loop (TTFL) forms the core of the molecular circadian clock mechanism. Transcription factors, CLOCK or NPAS2 and BMAL1 or BMAL2, form the positive limb of the feedback loop, act in the form of a heterodimer and activate the transcription of core clock genes and clock-controlled genes (involved in key metabolic processes), harboring E-box elements (5'-CACGTG-3') within their promoters. The core clock genes: PER1/2/3 and CRY1/2 which are transcriptional repressors form the negative limb of the feedback loop and interact with the CLOCK|NPAS2-BMAL1|BMAL2 heterodimer inhibiting its activity and thereby negatively regulating their own expression. This heterodimer also activates nuclear receptors NR1D1/2 and RORA/B/G, which form a second feedback loop and which activate and repress BMAL1 transcription, respectively. The NPAS2-BMAL1 heterodimer positively regulates the expression of MAOA, F7 and LDHA and modulates the circadian rhythm of daytime contrast sensitivity by regulating the rhythmic expression of adenylate cyclase type 1 (ADCY1) in the retina. NPAS2 plays an important role in sleep homeostasis and in maintaining circadian behaviors in normal light/dark and feeding conditions and in the effective synchronization of feeding behavior with scheduled food availability. Regulates the gene transcription of key metabolic pathways in the liver and is involved in DNA damage response by regulating several cell cycle and DNA repair genes. Controls the circadian rhythm of NR0B2 expression by binding rhythmically to its promoter (By similarity). Mediates the diurnal variation in the expression of GABARA1 receptor in the brain and contributes to the regulation of anxiety-like behaviors and GABAergic neurotransmission in the ventral striatum (By similarity). {ECO:0000250|UniProtKB:P97460, ECO:0000269|PubMed:11441146, ECO:0000269|PubMed:11441147, ECO:0000269|PubMed:14645221, ECO:0000269|PubMed:18439826, ECO:0000269|PubMed:18819933}.
Molecular Weight:	91.8 kDa
UniProt:	Q99743
Pathways:	Regulation of Lipid Metabolism by PPARalpha, Photoperiodism

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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. 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)

Image 1. „Crystallography Grade“ protein due to multi-step, protein-specific purification process

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