

Datasheet for ABIN3094225 NPAS2 Protein (AA 1-824) (Strep Tag)



Overview

Quantity:	250 µg
Target:	NPAS2
Protein Characteristics:	AA 1-824
Origin:	Human
Source:	Cell-free protein synthesis (CFPS)
Protein Type:	Recombinant
Purification tag / Conjugate:	This NPAS2 protein is labelled with Strep Tag.
Application:	ELISA, Western Blotting (WB), SDS-PAGE (SDS)

Product Details

Brand:	AliCE®
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

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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 posttranslational 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

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Product Details

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

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	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