Datasheet for ABIN3094527

PER2 Protein (AA 1-1255) (Strep Tag)

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Overview

Quantity:	250 µg
Target:	PER2
Protein Characteristics:	AA 1-1255
Origin:	Human
Source:	Cell-free protein synthesis (CFPS)
Protein Type:	Recombinant
Purification tag / Conjugate:	This PER2 protein is labelled with Strep Tag.
Application:	Western Blotting (WB), SDS-PAGE (SDS), ELISA

Product Details

Brand:	AliCE®
Sequence:	MNGYAEFPPS PSNPTKEPVE PQPSQVPLQE DVDMSSGSSG HETNENCSTG RDSQGSDCDD SGKELGMLVE PPDARQSPDT FSLMMAKSEH NPSTSGCSSD QSSKVDTHKE LIKTLKELKV HLPADKKAKG KASTLATLKY ALRSVKQVKA NEEYYQLLMS SEGHPCGADV PSYTVEEMES VTSEHIVKNA DMFAVAVSLV SGKILYISDQ VASIFHCKRD AFSDAKFVEF LAPHDVGVFH SFTSPYKLPL WSMCSGADSF TQECMEEKSF FCRVSVRKSH ENEIRYHPFR MTPYLVKVRD QQGAESQLCC LLLAERVHSG YEAPRIPPEK RIFTTTHTPN CLFQDVDERA VPLLGYLPQD LIETPVLVQL HPSDRPLMLA IHKKILQSGG QPFDYSPIRF RARNGEYITL DTSWSSFINP WSRKISFIIG RHKVRVGPLN EDVFAAHPCT EEKALHPSIQ ELTEQIHRLL LQPVPHSGSS GYGSLGSNGS HEHLMSQTSS SDSNGHEDSR RRRAEICKNG NKTKNRSHYS HESGEQKKKS VTEMQTNPPA EKKAVPAMEK DSLGVSFPEE LACKNQPTCS YQQISCLDSV IRYLESCNEA ATLKRKCEFP ANVPALRSSD KRKATVSPGP HAGEAEPPSR VNSRTGVGTH LTSLALPGKA

ESVASLTSQC SYSSTIVHVG DKKPQPELEM VEDAASGPES LDCLAGPALA CGLSQEKEPF KKLGLTKEVL AAHTQKEEQS FLQKFKEIRK LSIFQSHCHY YLQERSKGQP SERTAPGLRN TSGIDSPWKK TGKNRKLKSK RVKPRDSSES TGSGGPVSAR PPLVGLNATA WSPSDTSQSS CPAVPFPAPV PAAYSLPVFP APGTVAAPPA PPHASFTVPA VPVDLQHQFA VQPPPFPAPL APVMAFMLPS YSFPSGTPNL PQAFFPSQPQ FPSHPTLTSE MASASQPEFP SRTSIPRQPC ACPATRATPP SAMGRASPPL FQSRSSSPLQ LNLLQLEEAP EGGTGAMGTT GATETAAVGA DCKPGTSRDQ QPKAPLTRDE PSDTQNSDAL STSSGLLNLL LNEDLCSASG SAASESLGSG SLGCDASPSG AGSSDTSHTS KYFGSIDSSE NNHKAKMNTG MEESEHFIKC VLQDPIWLLM ADADSSVMMT YQLPSRNLEA VLKEDREKLK LLQKLQPRFT ESQKQELREV HQWMQTGGLP AAIDVAECVY CENKEKGNIC IPYEEDIPSL GLSEVSDTKE DENGSPLNHR IEEQT

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 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!

Product Details

	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:	PER2
Alternative Name:	PER2 (PER2 Products)
Background:	Period circadian protein homolog 2 (hPER2) (Circadian clock protein PERIOD 2),FUNCTION: Transcriptional repressor 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 syndrome 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. PER1 and PER2 proteins transport CRY1 and CRY2 into the nucleus with appropriate circadian timing, but also contribute directly to repression of clock-controlled target genes through interaction with several classes of RNA-binding proteins, helicases and others transcriptional repressors. PER appears to regulate circadian control of transcription by at least three different modes. First, interacts directly with the CLOCK-BMAL1 at the tail end of the nascent transcript peak to recruit complexes containing the SIN3-HDAC that remodel chromatin to repress transcription. Second, brings H3K9 methyltransferases such as SUV39H1 and SUV39H2 to the E-box elements of the circadian target genes, like PER2 itself or PER1. The recruitment of each repressive modifier to the DNA seems to be very precisely temporally orchestrated by the large PER complex, the deacetylases acting before than the methyltransferases. Additionally, large PER complexes are also recruited to the target genes 3' termination site through interactions with RNA-binding proteins and helicases that may play a role in transcription termination to regulate transcription independently of CLOCK-BMAL1 interactions. Recruitment of large PER complexes to the elongating polymerase at PER and CRY termination sites inhibited SETX action, impeding RNA polymerase II release and thereby repressing transcriptional reinitiation. May propagate clock information to metabolic pathways via the interaction with nuclear receptors. Coactivator of PPARA and corepressor of NR1D1, binds rhythmically at the promoter of nuclear receptors target genes like BMAL1 or G6PC1. Directly and specifically represses PPARG proadipogenic activity by blocking PPARG recruitment to target promoters and thereby inhibiting transcriptional activation. Required for fatty acid and lipid metabolism, is involved as well in the regulation of circulating insulin levels. Plays an important role in the maintenance of cardiovascular functions through the regulation

Target Details

	of NO and vasodilatatory prostaglandins production in aortas. Controls circadian glutamate uptake in synaptic vesicles through the regulation of VGLUT1 expression. May also be involved in the regulation of inflammatory processes. Represses the CLOCK-BMAL1 induced transcription of BHLHE40/DEC1 and ATF4. Negatively regulates the formation of the TIMELESS-CRY1 complex by competing with TIMELESS for binding to CRY1. {ECO:0000250|UniProtKB:O54943}.
Molecular Weight:	136.6 kDa
UniProt:	O15055

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.

Handling

Expiry Date:	12 months