

Datasheet for ABIN3131719
PER1 Protein (AA 1-1291) (His tag)[Go to Product page](#)

1 Image

Overview

Quantity:	1 mg
Target:	PER1
Protein Characteristics:	AA 1-1291
Origin:	Mouse
Source:	Insect Cells
Protein Type:	Recombinant
Purification tag / Conjugate:	This PER1 protein is labelled with His tag.
Application:	Crystallization (Crys), ELISA, SDS-PAGE (SDS), Western Blotting (WB)

Product Details

Sequence:	MSGPLEGADG GGDPRPGEPF CPGGVPSPGA PQHRPCGPS LADTDANSN GSSGNESNGP ESRGASQRSS HSSSSGNGKD SALLETTES KSTNSQSPSP PSSSIAYSL SASSSEQDNPS TSGCSSEQSA RARTQKELMT ALRELKLRLP PERRGKGRSG TLATLQYALA CVKQVQANQE YYQWSLEEG EPCAMDMSTY TLEELEHITS EYTLRNQDTF SVAVSFLTGR IVYISEQAGV LLRCKRDVFR GARFSELLAP QDVGVFYGST TPSRLPTWGT GTSAGSGLKD FTQEKSVFCR IRGGPDRDPG PRYQPFRLTP YVTKIRVSDG APAQPCLLI AERIHSGYEA PRIPDPKRIF TTRHTPSCLF QDVDERAAPL LGYLPQDLLG APVLLFLHPE DRPLMLAIHK KILQLAGQPF DHSPIRFCAR NGEYVTMDTS WAGFVHPWSR KVAFVLGRHK VRTAPLNEDV FTTPAPSPAP SLDSDIQELS EQIHRLLLQP VHSSSPTGLC GVGPLMSPGP LHSPGSSSDS NGGDAEGPGP PAPVTFQIC KDVHLVKHQG QQLFIESRAK PPPRPRLLAT GTFKAKVLPC QSPNPELEVA PVPDQASLAL APEEPERKET SGCSYQQINC LDSILRYLES CNIPSTTKRK CASSSSYTAS SASDDDKQRA GPVPVGAKKD PSSAMLSGEG ATPRKEPVVG GTLSPLALAN KAESVSVSTS
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QCSFSSTIVH VGDKKPPESD IIMMEDLPGL APGPAPSPAP SPTVAPDPTP DAYRPVGLTK
AVLSLHTQKE EQAFLNRFRD LGRLRGLDTS SVAPSAPGCH HGPIPPGRRH HCRSKAKRSR
HHHHQTPRPE TPCYVSHSPSP VPSSGPWPPP PATTPFPAMV QPYPLPVFSP RGGPQPLPPA
PTSVSPATFP SPLVTPMVAL VLPNYLFPTP PSYPYGVSSQA PVEGPPTPAS HSPSPSLPPP
PLSPPHRPDS PLFNSRCSSP LQLNLLQLEE SPRTEGGAAA GGPSSAGPL PPSEETAEP
ARLVEVTESS NQDALSGSSD LLELLQEDS RSGTGSAASG SLGSGLGSGS GSGSHEGGST
SASITRSSQS SHTSKYFGSI DSSEAEAGAA RARTEPGDQV IKCVLQDPIW LLMANADQRV
MMTYQVPSRD AASVLKQDRE RLRAMQKQP RFSEDQRREL GAVHSWVRKG QLPRALDVTA
CVDGSSVQD PGHSDPLFS ELDGLGLEPM EEGGEGGGC GVGGGGDGG EEAQTQIGAK
GSSSQDSAME EEEQGGGSSS PALPAEENST S

Sequence without tag. Tag location is at the discretion of the manufacturer. If you have a special request, please contact us.

Characteristics:

- Made in Germany - from design to production - by highly experienced protein experts.
- Mouse Per1 Protein (raised in Insect Cells) purified by multi-step, protein-specific process to ensure crystallization grade.
- 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.

In the unlikely event that the protein cannot be expressed or purified we do not charge anything (other companies might charge you for any performed steps in the expression process for custom-made proteins, e.g. fees might apply for the expression plasmid, the first expression experiments or purification optimization).

When you order this made-to-order protein you will only pay upon receipt of the correctly folded protein. With no financial risk on your end you can rest assured that our experienced protein experts will do everything to make sure that you receive the protein you ordered.

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.

The concentration of the protein is calculated using its specific absorption coefficient. We use the Expasy's protparam tool to determine the absorption coefficient of each protein.

Purification:

- Two step purification of proteins expressed in baculovirus infected SF9 insect cells:
1. In a first purification step, the protein is purified from the cleared cell lysate using three

Product Details

different His-tag capture materials: high yield, EDTA resistant, or DTT resistant. 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: >95 % as determined by SDS PAGE, Size Exclusion Chromatography and Western Blot.

Sterility: 0.22 µm filtered

Endotoxin Level: Protein is endotoxin free.

Grade: Crystallography grade

Target Details

Target: PER1

Alternative Name: Per1 ([PER1 Products](#))

Background: 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, ARNTL/BMAL1, ARNTL2/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 ARNTL/BMAL1 or ARNTL2/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-ARNTL/BMAL1|ARNTL2/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 ARNTL/BMAL1 transcription, respectively. Regulates circadian target genes expression at post-transcriptional levels, but may not be required for the repression at transcriptional level. Controls PER2 protein decay. Represses CRY2 preventing its repression on CLOCK/ARNTL target genes such as FXYD5 and SCN1A in kidney and PPARA in liver. Besides its involvement in the maintenance of the circadian clock, has an important function in the regulation of several processes. Participates in the repression of glucocorticoid receptor NR3C1/GR-induced transcriptional activity by reducing the association of NR3C1/GR to glucocorticoid response elements (GREs) by ARNTL:CLOCK. Plays a role in the modulation of the neuroinflammatory state via the regulation of inflammatory mediators release, such as CCL2 and IL6. In spinal astrocytes, negatively regulates the MAPK14/p38 and MAPK8/JNK MAPK cascades as well as the subsequent activation of NFkappaB. Coordinately regulates the expression of multiple genes that are involved in the regulation of renal sodium reabsorption. Can act as gene expression activator in a gene and tissue specific manner, in kidney enhances WNK1 and SLC12A3 expression in collaboration with CLOCK. Modulates hair follicle cycling. Represses the CLOCK-ARNTL/BMAL1 induced transcription of BHLHE40/DEC1.

{ECO:0000269|PubMed:11395012, ECO:0000269|PubMed:14672706, ECO:0000269|PubMed:15888647, ECO:0000269|PubMed:21930935, ECO:0000269|PubMed:22331899, ECO:0000269|PubMed:24154698, ECO:0000269|PubMed:24378737, ECO:0000269|PubMed:24610784, ECO:0000269|PubMed:9856465}.

Molecular Weight: 137.3 kDa Including tag.

UniProt: [O35973](#)

Target Details

Pathways: [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:	Protein has not been tested for activity yet. In cases in which it is highly likely that the recombinant protein with the default tag will be insoluble our protein lab may suggest a higher molecular weight tag (e.g. GST-tag) instead to increase solubility. We will discuss all possible options with you in detail to assure that you receive your protein of interest.
Restrictions:	For Research Use only

Handling

Format:	Liquid
Buffer:	100 mM NaCL, 20 mM Hepes, 10% glycerol. pH value is at the discretion of the manufacturer.
Handling Advice:	Avoid repeated freeze-thaw cycles.
Storage:	-80 °C
Storage Comment:	Store at -80°C.
Expiry Date:	Unlimited (if stored properly)

Images



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