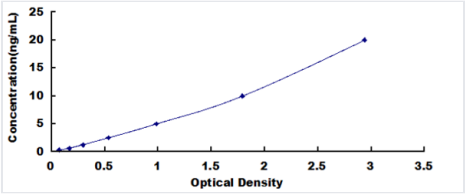
Clock Homolog (CLOCK) ELISA Kit for Human

PRODUCT OVERVIEW

Product Name	Clock Homolog (CLOCK), ELISA Kit
Full Product Name	Human Clock Homolog (CLOCK) ELISA Kit
Product Gene Name	CLOCK elisa kit
Product Synonym Names	KAT13D; bHLHe8; Class E basic helix-loop-helix protein 8
Species Reactivity	Human
Assay Type	Sandwich
Samples	Tissue homogenates, cell lysates and other biological fluids.
Detection Range	0.312-20ng/mL
Sensitivity	0.109ng/mL
Preparation and Storage	For unopened kit, all reagents should be kept according to the labels on vials. The TMB Substrate, Wash Buffer, Stop Solution should be stored at 4 degree C. All others should be stored at -20 degree C.
Molecular Weight	95,304 Da
OMIM	AF011568 mRNA
3D Structure	ModBase 3D Structure for O15516
Intra Assay	CV<10%
Inter Assay	CV<12%
ISO Certification	Manufactured in an ISO 13485:2003 and EN ISO 13485:2012 Certified Laboratory.
Related Product Information for CLOCK elisa kit	MBS451294 is a ready-to-use microwell, strip-or-full plate ELISA (enzyme-linked immunosorbent assay) Kit for analyzing the presence of the Clock Homolog (CLOCK) ELISA Kit target analytes in biological samples. The concentration gradients of the kit standards or positive controls render a theoretical kit detection range in biological research samples containing CLOCK. The ELISA analytical biochemical technique of the MBS451294 kit is based on CLOCK antibody-CLOCK antigen interactions (immunosorbency) and an HRP colorimetric detection system to detect CLOCK antigen targets in samples. The ELISA Kit is designed to detect native, not recombinant, CLOCK. Appropriate sample types may include undiluted body fluids and/or tissue homogenates, secretions. Quality control assays assessing reproducibility identified the intra-assay CV (%) and inter-assay CV(%).
Other Notes	Small volumes of CLOCK elisa kit vial(s) may occasionally become entrapped in the seal of the product vial during shipment and storage. If necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the container`s cap. Certain products may require to ship with dry ice and additional dry ice fee may apply.



Typical Testing Data/Standard Curve (for reference only) of CLOCK elisa kit

ADDITIONAL DETAILS

NCBI/Uniprot data below describe general gene information for CLOCK. It may not necessarily be applicable to this product.

NCBI GI #	392841204
NCBI GeneID	9575
NCBI Accession #	NP_001254772.1
UniProt Primary Accession #	O15516
UniProt Secondary Accession #	O14516; Q9UIT8; A0AV01; A2I2N9
UniProt Related Accession #	O15516
GenBank Nucleotide #	NM_001267843.1
NCBI Official Full Name	circadian locomoter output cycles protein kaput
NCBI Official Synonym Full Names	clock circadian regulator
NCBI Official Symbol	CLOCK
NCBI Official Synonym Symbols	KAT13D; bHLHe8
UniProt Protein Name	Circadian locomoter output cycles protein kaput
UniProt Synonym Protein Names	Class E basic helix-loop-helix protein 8; bHLHe8
Protein Family	Circadian locomoter output cycles protein
UniProt Gene Name	CLOCK
UniProt Synonym Gene Names	BHLHE8; KIAA0334; hCLOCK; bHLHe8
NCBI Protein Information	circadian locomoter output cycles protein kaput
NCBI Summary for CLOCK	The protein encoded by this gene plays a central role in the regulation of circadian rhythms. The protein encodes a transcription factor of the basic helix-loop-helix (bHLH) family and contains DNA binding histone acetyltransferase activity. The encoded protein forms a heterodimer with ARNTL (BMAL1) that binds E-box enhancer elements upstream of Period (PER1, PER2, PER3) and Cryptochrome (CRY1, CRY2) genes and activates transcription of these genes. PER and CRY proteins heterodimerize and repress their own transcription by interacting in a feedback loop with CLOCK/ARNTL complexes. Polymorphisms in this gene may be associated with behavioral changes in certain populations and with obesity and metabolic syndrome. Alternative splicing results in multiple transcript variants. [provided by RefSeq, Jan 2014]

UniProt Comments for CLOCK	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, 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. CLOCK has an intrinsic acetyltransferase activity, which enables circadian chromatin remodeling by acetylating histones and nonhistone proteins, including its own partner ARNTL/BMAL1. Regulates the circadian expression of ICAM1, VCAM1, CCL2, THPO and MPL and also acts as an enhancer of the transactivation potential of NF-kappaB. Plays an important role in the homeostatic regulation of sleep. The CLOCK-ARNTL/BMAL1 heterodimer regulates the circadian expression of SERPINE1/PAI1, VWF, B3, CCRN4L/NOC, NAMPT, DBP, MYOD1, PPARGC1A, PPARGC1B, SIRT1, GYS2, F7, NGFR, GNRHR, BHLHE40/DEC1, ATF4, MTA1, KLF10 and also genes implicated in glucose and lipid metabolism. Represses glucocorticoid receptor NR3C1/GR-induced transcriptional activity by reducing the association of NR3C1/GR to glucocorticoid response elements (GREs) via the acetylation of multiple lysine residues located in its hinge region. Promotes rhythmic chromatin opening, regulating the DNA accessibility of other transcription factors. The CLOCK-ARNTL2/BMAL2 heterodimer activates the transcription of SERPINE1/PAI1 and BHLHE40/DEC1.
Research Articles on CLOCK	**1.** The possession of CLOCK rs3749474 may influence the effect of reducing the percentage intake of dietary fat on obesity-associated variables and carrying this SNP might benefit more than others from weight loss treatment involving dietary fat restriction.
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