

Rabbit BMAL1 Polyclonal Antibody | anti-BMAL1 antibody

Phospho-BMAL1 (Ser42) Antibody

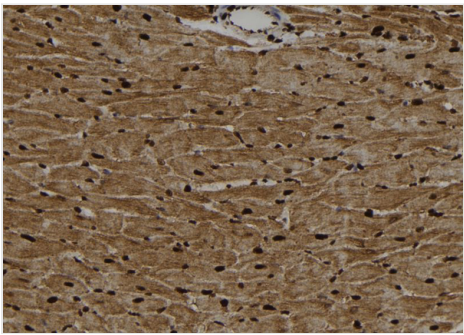
CATALOG # AAA321310	HOST Rabbit	REACTIVITY Human, Mouse, Rat	APPLICATIONS Immunohistochemistry, Western Blot
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PRODUCT SYNONYMS

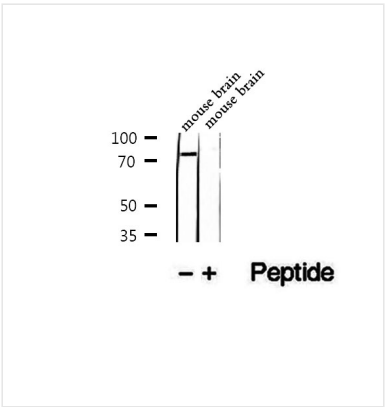
BMAL1; Polyclonal Antibody; Phospho-BMAL1 (Ser42) Antibody; ARNT like protein 1 brain and muscle; Arntl; Aryl hydrocarbon receptor nuclear translocator like; Aryl hydrocarbon receptor nuclear translocator like protein 1; Aryl hydrocarbon receptor nuclear translocator-like protein 1; Basic helix loop helix PAS orphan MOP3; Basic helix loop helix PAS protein MOP3; Basic-helix-loop-helix-PAS protein MOP3; bHLH PAS protein JAP3; bHLH-PAS protein JAP3; bHLHe5; BMAL 1; BMAL1_HUMAN; BMAL1c; Brain and muscle ARNT like 1; Brain and muscle ARNT-like 1; CG8727 PA; Class E basic helix-loop-helix protein 5; cycle; JAP 3; JAP3; Member of PAS protein 3; Member of PAS superfamily 3; MGC47515; MOP 3; MOP3; PAS domain-containing protein 3; PASD 3; PASD3; TIC; anti-BMAL1 antibody

PRODUCT SPECIFICATIONS

Host	Rabbit
Reactivity	Human, Mouse, Rat
Clonality	Polyclonal
Isotype	IgG
Specificity	Phospho-BMAL1 (Ser42) antibody detects endogenous levels of BMAL1.
Purity/Purification	From purified rabbit serum by affinity purification via sequential chromatography on phospho-and non-phospho-peptide affinity columns.
Form/Format	Liquid Phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol.
Concentration	1mg/ml (varies by lot)
Sequence Length	625
Applicable Applications for anti-BMAL1 antibody	IHC (Immunohistochemistry), WB (Western Blot)
Immunogen	A synthesized peptide derived from human BMAL1 around the phosphorylation site of Ser42.
Subcellular Location	Nucleus. Cytoplasm. Nucleus, PML Body. Shuttles between the nucleus and the cytoplasm and this nucleocytoplasmic shuttling is essential for the nuclear accumulation of CLOCK, target gene transcription and the degradation of the CLOCK-ARNTL/BMAL1 heterodimer. The sumoylated form localizes in the PML body. Sequestered to the cytoplasm in the presence of ID2.
Tissue Specificity	Hair follicles (at protein level). Highly expressed in the adult brain, skeletal muscle and heart.
Predicted Cross Reactivity	Pig, Bovine, Horse, Sheep, Rabbit, Dog, Chicken, Xenopus
Similarity	Pig (100%), Bovine (100%), Horse (100%), Sheep (100%), Rabbit (100%), Dog (100%), Chicken (100%), Xenopus (82%)
Conjugation	Unconjugated
Epitope	Phospho Ser42
Preparation and Storage	Store at -20 degree C. Stable for 12 months from date of receipt.



IHC (Immunohistochemistry)
AAA321310 at 1/100 staining Rat heart tissue by IHC-P. The sample was formaldehyde fixed and a heat mediated antigen retrieval step in citrate buffer was performed. The sample was then blocked and incubated with the antibody for 1.5 hours at 22 degree C. An HRP conjugated goat anti-rabbit antibody was used as the secondary.



WB (Western Blot)
Western blot analysis of extracts of mouse brain tissue, using Phospho-BMAL1 (Ser42) Antibody.

Related Product Information for anti-BMAL1 antibody

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, 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. ARNTL/BMAL1 positively regulates myogenesis and negatively regulates adipogenesis via the transcriptional control of the genes of the canonical Wnt signaling pathway. Plays a role in normal pancreatic beta-cell function; regulates glucose-stimulated insulin secretion via the regulation of antioxidant genes NFE2L2/NRF2 and its targets SESN2, PRDX3, CCLC and CCLM. Negatively regulates the mTORC1 signaling pathway; regulates the expression of MTOR and DEPTOR. Controls diurnal oscillations of Ly6C inflammatory monocytes; rhythmic recruitment of the PRC2 complex imparts diurnal variation to chemokine expression that is necessary to sustain Ly6C monocyte rhythms. Regulates the expression of HSD3B2, STAR, PTGS2, CYP11A1, CYP19A1 and LHCGR in the ovary and also the genes involved in hair growth. Plays an important role in adult hippocampal neurogenesis by regulating the timely entry of neural stem/progenitor cells (NSPCs) into the cell cycle and the number of cell divisions that take place prior to cell-cycle exit. Regulates the circadian expression of CIART and KLF11. 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. Promotes rhythmic chromatin opening, regulating the DNA accessibility of other transcription factors. The NPAS2-ARNTL/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 adenylylate cyclase type 1 (ADCY1) in the retina. The preferred binding motif for the CLOCK-ARNTL/BMAL1 heterodimer is 5'-CACGTGA-3', which contains a flanking Ala residue in addition to the canonical 6-nucleotide E-box sequence (PubMed:23229515). CLOCK specifically binds to the half-site 5'-CAC-3', while ARNTL binds to the half-site 5'-GTGA-3' (PubMed:23229515). The CLOCK-ARNTL/BMAL1 heterodimer also recognizes the non-canonical E-box motifs 5'-AACGTGA-3' and 5'-CATGTGA-3' (PubMed:23229515). Essential for the rhythmic interaction of CLOCK with ASS1 and plays a critical role in positively regulating CLOCK-mediated acetylation of ASS1 (PubMed:28985504).

Subunit Structure: Component of the circadian clock oscillator which includes the CRY1/2 proteins, CLOCK or NPAS2, ARNTL/BMAL1 or ARNTL2/BMAL2, CSNK1D and/or CSNK1E, TIMELESS and the PER1/2/3 proteins (By similarity). Forms a heterodimer with CLOCK (PubMed:9616112, PubMed:23229515). The CLOCK-ARNTL/BMAL1 heterodimer is required for E-box-dependent transactivation, for CLOCK nuclear translocation and degradation, and, for phosphorylation of both CLOCK and ARNTL/BMAL1 (By similarity). Part of a nuclear complex which also includes RACK1 and PRKCA; RACK1 and PRKCA are recruited to the complex in a circadian manner (By similarity). Interacts with NPAS2 (By similarity). Interacts with EZH2 (By similarity). Interacts with SUMO3 (By similarity). Interacts with SIRT1 (By similarity). Interacts with AHR (PubMed:9079689). Interacts with ID1, ID2 and ID3 (By similarity). Interacts with DDX4 (By similarity). Interacts with OGT (By similarity). Interacts with EED and SUZ12 (By similarity). Interacts with MTA1 (By similarity). Interacts with CIART (PubMed:24385426). Interacts with HSP90 (PubMed:9079689). Interacts with KAT2B and EP300 (PubMed:14645221). Interacts with BHLHE40/DEC1 and BHLHE41/DEC2 (By similarity). Interacts with RELB and the interaction is enhanced in the presence of CLOCK (By similarity). Interacts with PER1, PER2, CRY1 and CRY2 and this interaction requires a translocation to the nucleus (By similarity). Interaction of the CLOCK-ARNTL/BMAL1 heterodimer with PER or CRY inhibits transcription activation (By similarity). Interaction of the CLOCK-ARNTL/BMAL1 with CRY1 is independent of DNA but with PER2 is off DNA (By similarity). The CLOCK-ARNTL/BMAL1 heterodimer interacts with GSK3B (By similarity). Interacts with KDM5A (PubMed:21960634). Interacts with KMT2A; in a circadian manner (By similarity). Interacts with UBE3A (PubMed:24728990). Interacts with PRKCG (By similarity). Interacts with MAGEL2 (By similarity). Interacts with NCOA2 (By similarity). Interacts with THRAP3 (By similarity). The CLOCK-ARNTL/BMAL1 heterodimer interacts

NCBI AND UNIPROT INFORMATION

NCBI GI #	71852580
NCBI GeneID	406
NCBI Accession #	NP_001025443.1
NCBI GenBank Nucleotide #	NM_001030272.2
UniProt Accession #	O00327; O00313; O00314; O00315; O00316; O00317; Q4G136; A2I2N6; A8K645; B5ME11; B7WPG7; D3DQW6
Molecular Weight	Observed: 78 kDa Predicted: 69 kDa
NCBI Official Full Name	aryl hydrocarbon receptor nuclear translocator-like protein 1 isoform a
NCBI Official Synonym Full Names	aryl hydrocarbon receptor nuclear translocator like
NCBI Official Symbol	ARNTL
NCBI Official Synonym Symbols	TIC; JAP3; MOP3; BMAL1; PASD3; BMAL1c; bHLHe5
NCBI Protein Information	aryl hydrocarbon receptor nuclear translocator-like protein 1
UniProt Protein Name	Aryl hydrocarbon receptor nuclear translocator-like protein 1
UniProt Gene Name	ARNTL
UniProt Synonym Gene Names	BHLHE5; BMAL1; MOP3; PASD3; bHLHe5

For Research Use Only. Not for use in diagnostic or therapeutic procedures. Small volumes of product may become entrapped in the seal of the vial during shipment and storage; if necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the cap.

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Online datasheet: <https://stage.aaabiotech.com/polyclonal/bmal1-antibody-immunohistochemistry-western-blot-elisa/321310>