

p300 Antibody

Purified Rabbit Polyclonal Antibody (Pab)

Catalog # AP51188

Product Information

Application	WB, IHC-P
Primary Accession	Q09472
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Calculated MW	264161

Additional Information

Gene ID	2033
Other Names	Histone acetyltransferase p300, p300 HAT, E1A-associated protein p300, EP300, P300
Target/Specificity	KLH-conjugated synthetic peptide encompassing a sequence within the N-term region of human p300. The exact sequence is proprietary.
Dilution	WB~~1:1000 IHC-P~~N/A
Format	0.01M PBS, pH 7.2, 0.09% (W/V) Sodium azide, Glycerol 50%
Storage	Store at -20 °C.Stable for 12 months from date of receipt

Protein Information

Name	EP300 {ECO:0000303 PubMed:15706485, ECO:0000312 HGNC:HGNC:3373}
Function	Functions as a histone acetyltransferase and regulates transcription via chromatin remodeling (PubMed: 23415232 , PubMed: 23934153 , PubMed: 8945521). Acetylates all four core histones in nucleosomes (PubMed: 23415232 , PubMed: 23934153 , PubMed: 8945521). Histone acetylation gives an epigenetic tag for transcriptional activation (PubMed: 23415232 , PubMed: 23934153 , PubMed: 8945521). Mediates acetylation of histone H3 at 'Lys-122' (H3K122ac), a modification that localizes at the surface of the histone octamer and stimulates transcription, possibly by promoting nucleosome instability (PubMed: 23415232). Mediates acetylation of histone H3 at 'Lys-18' and 'Lys-27' (H3K18ac and H3K27ac, respectively) (PubMed: 21131905 , PubMed: 23911289). Also able to acetylate histone lysine residues that are already monomethylated on the same side chain to form N6-acetyl-N6-methyllysine (Kacme), an epigenetic mark of active chromatin associated with increased transcriptional initiation (PubMed: 37731000). Catalyzes formation of histone H4 acetyl-methylated at 'Lys-5' and 'Lys-12'

(H4K5acme and H4K12acme, respectively) (PubMed:[37731000](#)). Also functions as acetyltransferase for non-histone targets, such as ALX1, HDAC1, PRMT1, SIRT2, STAT3 or GLUL (PubMed:[12929931](#), PubMed:[15653507](#), PubMed:[16285960](#), PubMed:[16762839](#), PubMed:[18722353](#), PubMed:[18782771](#), PubMed:[26990986](#)). Acetylates 'Lys-131' of ALX1 and acts as its coactivator (PubMed:[12929931](#)). Acetylates SIRT2 and is proposed to indirectly increase the transcriptional activity of p53/TP53 through acetylation and subsequent attenuation of SIRT2 deacetylase function (PubMed:[18722353](#)). Following DNA damage, forms a stress-responsive p53/TP53 coactivator complex with JMY which mediates p53/TP53 acetylation, thereby increasing p53/TP53-dependent transcription and apoptosis (PubMed:[11511361](#), PubMed:[15448695](#)). Promotes chromatin acetylation in heat shock responsive HSP genes during the heat shock response (HSR), thereby stimulating HSR transcription (PubMed:[18451878](#)). Acetylates HDAC1 leading to its inactivation and modulation of transcription (PubMed:[16762839](#)). Acetylates 'Lys-247' of EGR2 (By similarity). Acts as a TFAP2A-mediated transcriptional coactivator in presence of CITED2 (PubMed:[12586840](#)). Plays a role as a coactivator of NEUROD1-dependent transcription of the secretin and p21 genes and controls terminal differentiation of cells in the intestinal epithelium. Promotes cardiac myocyte enlargement (PubMed:[14752053](#)). Can also mediate transcriptional repression. Acetylates FOXO1 and enhances its transcriptional activity (PubMed:[15890677](#)). Acetylates STAT3 at different sites, promoting both STAT3 dimerization and activation and recruitment to chromatin (PubMed:[15653507](#), PubMed:[16285960](#), PubMed:[18782771](#)). Acetylates BCL6 which disrupts its ability to recruit histone deacetylases and hinders its transcriptional repressor activity (PubMed:[12402037](#)). Participates in CLOCK or NPAS2-regulated rhythmic gene transcription; exhibits a circadian association with CLOCK or NPAS2, correlating with increase in PER1/2 mRNA and histone H3 acetylation on the PER1/2 promoter (PubMed:[14645221](#)). Acetylates MTA1 at 'Lys-626' which is essential for its transcriptional coactivator activity (PubMed:[16617102](#)). Acetylates XBP1 isoform 2; acetylation increases protein stability of XBP1 isoform 2 and enhances its transcriptional activity (PubMed:[20955178](#)). Acetylates PCNA; acetylation promotes removal of chromatin-bound PCNA and its degradation during nucleotide excision repair (NER) (PubMed:[24939902](#)). Acetylates MEF2D (PubMed:[21030595](#)). Acetylates and stabilizes ZBTB7B protein by antagonizing ubiquitin conjugation and degradation, this mechanism may be involved in CD4/CD8 lineage differentiation (PubMed:[20810990](#)). Acetylates GABPB1, impairing GABPB1 heterotetramerization and activity (By similarity). Acetylates PCK1 and promotes PCK1 anaplerotic activity (PubMed:[30193097](#)). Acetylates RXRA and RXRG (PubMed:[17761950](#)). Acetylates isoform M2 of PKM (PKM2), promoting its homodimerization and conversion into a protein kinase (PubMed:[24120661](#)). Acetylates RPTOR in response to leucine, leading to activation of the mTORC1 complex (PubMed:[30197302](#), PubMed:[32561715](#)). Acetylates RICTOR, leading to activation of the mTORC2 complex (PubMed:[22084251](#)). Mediates cAMP-gene regulation by binding specifically to phosphorylated CREBBP (PubMed:[8917528](#)). In addition to protein acetyltransferase, can use different acyl-CoA substrates, such as (2E)-butenoyl-CoA (crotonyl-CoA), butanoyl-CoA (butyryl-CoA), 2-hydroxyisobutanoyl-CoA (2-hydroxyisobutyryl-CoA), lactoyl-CoA or propanoyl-CoA (propionyl-CoA), and is able to mediate protein crotonylation, butyrylation, 2-hydroxyisobutyrylation, lactylation or propionylation, respectively (PubMed:[17267393](#), PubMed:[25818647](#), PubMed:[29775581](#), PubMed:[31645732](#)). Acts as a histone crotonyltransferase; crotonylation marks active promoters and enhancers and confers resistance to transcriptional repressors (PubMed:[25818647](#)). Histone crotonyltransferase activity is dependent on the concentration of (2E)-butenoyl-CoA (crotonyl-CoA) substrate and such activity is weak when (2E)-butenoyl-CoA (crotonyl-CoA) concentration is low (PubMed:[25818647](#)). Also acts as a histone

butyryltransferase; butyrylation marks active promoters (PubMed:[17267393](#)). Catalyzes histone lactylation in macrophages by using lactoyl-CoA directly derived from endogenous or exogenous lactate, leading to stimulates gene transcription (PubMed:[31645732](#)). Acts as a protein-lysine 2-hydroxyisobutyryltransferase; regulates glycolysis by mediating 2-hydroxyisobutyrylation of glycolytic enzymes (PubMed:[29775581](#)). Functions as a transcriptional coactivator for SMAD4 in the TGF-beta signaling pathway (PubMed:[25514493](#)).

Cellular Location

Cytoplasm. Nucleus. Chromosome Note=Localizes to active chromatin: Colocalizes with histone H3 acetylated and/or crotonylated at 'Lys-18' (H3K18ac and H3K18cr, respectively) (PubMed:25818647). In the presence of ALX1 relocates from the cytoplasm to the nucleus. Colocalizes with ROCK2 in the nucleus (PubMed:12929931). Localizes to sites of DNA damage (PubMed:25593309).

Background

Functions as histone acetyltransferase and regulates transcription via chromatin remodeling. Acetylates all four core histones in nucleosomes. Histone acetylation gives an epigenetic tag for transcriptional activation. Mediates cAMP-gene regulation by binding specifically to phosphorylated CREB protein. Mediates acetylation of histone H3 at 'Lys-122' (H3K122ac), a modification that localizes at the surface of the histone octamer and stimulates transcription, possibly by promoting nucleosome instability. Mediates acetylation of histone H3 at 'Lys-27' (H3K27ac). Also functions as acetyltransferase for nonhistone targets. Acetylates 'Lys-131' of ALX1 and acts as its coactivator in the presence of CREBBP. Acetylates SIRT2 and is proposed to indirectly increase the transcriptional activity of TP53 through acetylation and subsequent attenuation of SIRT2 deacetylase function. Acetylates HDAC1 leading to its inactivation and modulation of transcription. Acts as a TFAP2A-mediated transcriptional coactivator in presence of CITED2. Plays a role as a coactivator of NEUROD1-dependent transcription of the secretin and p21 genes and controls terminal differentiation of cells in the intestinal epithelium. Promotes cardiac myocyte enlargement. Can also mediate transcriptional repression. Binds to and may be involved in the transforming capacity of the adenovirus E1A protein. In case of HIV-1 infection, it is recruited by the viral protein Tat. Regulates Tat's transactivating activity and may help inducing chromatin remodeling of proviral genes. Acetylates FOXO1 and enhances its transcriptional activity. Acetylates BCL6 which disrupts its ability to recruit histone deacetylases and hinders its transcriptional repressor activity.

References

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Lundblad J.R., et al. *Nature* 374:85-88(1995).

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