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KD-Validated Anti-Lysine acetyltransferase 7 Rabbit Monoclonal Antibody

Rabbit monoclonal antibody
Catalog # AGI1293

Product Information

Application	WB, FC, ICC
Primary Accession	O95251
Reactivity	Rat, Human, Mouse
Clonality	Monoclonal
Isotype	Rabbit IgG
Clone Names	23GB 2390
Calculated MW	70642
Gene Name	KAT7
Aliases	KAT7; Lysine Acetyltransferase 7; HBO1; Histone Acetyltransferase Binding To ORC1; ZC2HC7; MYST2; HBOA; MOZ, YBF2/SAS3, SAS2 And TIP60 Protein; MYST Histone Acetyltransferase 2; Histone Acetyltransferase KAT7; K(Lysine) Acetyltransferase 7; Histone Acetyltransferase MYST2; EC 2.3.1.48; MYST-2; HBOa
Immunogen	A synthesized peptide derived from human KAT7 / HBO1 / MYST2

Additional Information

Gene ID	11143
Other Names	Histone acetyltransferase KAT7, 2.3.1.48, Histone acetyltransferase binding to ORC1, Lysine acetyltransferase 7, MOZ, YBF2/SAS3, SAS2 and TIP60 protein 2 {ECO:0000303|Ref.4}, MYST-2 {ECO:0000303|Ref.4}, KAT7 {ECO:0000303|PubMed:31767635, ECO:0000312|HGNC:HGNC:17016}

Protein Information

Name	KAT7 {ECO:0000303|PubMed:31767635, ECO:0000312|HGNC:HGNC:17016}
Function	Catalytic subunit of histone acetyltransferase HBO1 complexes, which specifically mediate acetylation of histone H3 at 'Lys-14' (H3K14ac), thereby regulating various processes, such as gene transcription, protein ubiquitination, immune regulation, stem cell pluripotent and self-renewal maintenance and embryonic development (PubMed:16387653, PubMed:21753189, PubMed:24065767, PubMed:26620551, PubMed:31767635, PubMed:31827282). Some complexes also catalyze acetylation of histone H4 at 'Lys-5', 'Lys-8' and 'Lys-12' (H4K5ac, H4K8ac and H4K12ac, respectively), regulating DNA replication initiation, regulating DNA replication initiation (PubMed:10438470, PubMed:19187766, PubMed:20129055, PubMed:24065767). Specificity of the HBO1 complexes is determined by the scaffold subunit: complexes containing BRPF scaffold

(BRPF1, BRD1/BRPF2 or BRPF3) direct KAT7/HBO1 specificity towards H3K14ac, while complexes containing JADE (JADE1, JADE2 and JADE3) scaffold direct KAT7/HBO1 specificity towards histone H4 (PubMed:19187766, PubMed:20129055, PubMed:24065767, PubMed:26620551). H3K14ac promotes transcriptional elongation by facilitating the processivity of RNA polymerase II (PubMed:31827282). Acts as a key regulator of hematopoiesis by forming a complex with BRD1/BRPF2, directing KAT7/HBO1 specificity towards H3K14ac and promoting erythroid differentiation (PubMed:21753189). H3K14ac is also required for T-cell development (By similarity). KAT7/HBO1-mediated acetylation facilitates two consecutive steps, licensing and activation, in DNA replication initiation: H3K14ac facilitates the activation of replication origins, and histone H4 acetylation (H4K5ac, H4K8ac and H4K12ac) facilitates chromatin loading of MCM complexes, promoting DNA replication licensing (PubMed:10438470, PubMed:11278932, PubMed:18832067, PubMed:19187766, PubMed:20129055, PubMed:21856198, PubMed:24065767, PubMed:26620551). Acts as a positive regulator of centromeric CENPA assembly: recruited to centromeres and mediates histone acetylation, thereby preventing centromere inactivation mediated by SUV39H1, possibly by increasing histone turnover/exchange (PubMed:27270040). Involved in nucleotide excision repair: phosphorylation by ATR in response to ultraviolet irradiation promotes its localization to DNA damage sites, where it mediates histone acetylation to facilitate recruitment of XPC at the damaged DNA sites (PubMed:28719581). Acts as an inhibitor of NF-kappa-B independently of its histone acetyltransferase activity (PubMed:16997280).

Cellular Location

Nucleus. Chromosome. Chromosome, centromere. Cytoplasm, cytosol {ECO:0000250|UniProtKB:Q5SVQ0}. Note=Associates with replication origins specifically during the G1 phase of the cell cycle (PubMed:18832067, PubMed:20129055). Localizes to transcription start sites (PubMed:21753189, PubMed:24065767). Localizes to ultraviolet- induced DNA damage sites following phosphorylation by ATR (PubMed:28719581). Localizes to centromeres in G1 phase (PubMed:27270040).

Tissue Location

Ubiquitously expressed, with highest levels in testis.

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