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ALKBH1 Recombinant Rabbit mAb

Catalog # AP99547

Product Information

Application	WB, IHC-P, IHC-F, IF
Primary Accession	Q13686
Other Accession	Q13686
Reactivity	Rat, Human, Mouse
Host	Rabbit
Clonality	Recombinant
Calculated MW	43832
Physical State	Liquid
Immunogen	A synthesized peptide derived from human ALKBH1
Epitope Specificity	1-85
Isotype	IgG
Purity	affinity purified by Protein A
Buffer	10mM phosphate buffered saline(pH 7.4) with 150mM sodium chloride, 0.05% BSA, 0.02% Proclin300 and 50% glycerol.
Important Note	This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.
Background Descriptions	Dioxygenase that repairs alkylated single-stranded DNA and RNA containing 3-methylcytosine by oxidative demethylation. Requires molecular oxygen, alpha-ketoglutarate and iron.

Additional Information

Gene ID	8846
Other Names	ALKB1_HUMAN; ALKBH1; Alkylated DNA repair protein alkB homolog 1; Alpha-ketoglutarate-dependent dioxygenase ABH1; DNA 6mA demethylase; DNA N6-methyl adenine demethylase ALKBH1; DNA lyase ABH1; DNA oxidative demethylase ALKBH1; mRNA N(3)-methylcytidine demethylase; 1.14.11.-; ABH; ABH1; ALKBH; alkB; hABH; alkB homolog 1, histone H2A dioxygenase; alkB, alkylation repair homolog (E. coli); alkB, alkylation repair homolog 1 (E. coli)
Dilution	WB=1:500-2000,IHC-P=1:100-200,IHC-F=1:100-200,IF=1:100-200
Storage	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. When reconstituted in sterile pH 7.4 0.01M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.

Protein Information

Name	ALKBH1 (HGNC:17911)

Function	Dioxygenase that acts on nucleic acids, such as DNA and tRNA (PubMed:18603530, PubMed:27497299, PubMed:27745969). Requires molecular oxygen, alpha-ketoglutarate and iron (PubMed:18603530, PubMed:27497299). A number of activities have been described for this dioxygenase, but recent results suggest that it mainly acts on tRNAs and mediates their demethylation or oxidation depending on the context and subcellular compartment (PubMed:27497299, PubMed:27745969). Mainly acts as a tRNA demethylase by removing N(1)-methyladenine from various tRNAs, with a preference for N(1)-methyladenine at position 58 (m1A58) present on a stem loop structure of tRNAs (PubMed:27745969). Acts as a regulator of translation initiation and elongation in response to glucose deprivation: regulates both translation initiation, by mediating demethylation of tRNA(Met), and translation elongation, N(1)- methyladenine-containing tRNAs being preferentially recruited to polysomes to promote translation elongation (PubMed:27745969). In mitochondrion, specifically interacts with mt-tRNA(Met) and mediates oxidation of mt-tRNA(Met) methylated at cytosine(34) to form 5- formylcytosine (f(5)c) at this position (PubMed:27497299). mt-tRNA(Met) containing the f(5)c modification at the wobble position enables recognition of the AUA codon in addition to the AUG codon, expanding codon recognition in mitochondrial translation (PubMed:27497299). Specifically demethylates DNA methylated on the 6th position of adenine (N(6)-methyladenosine) DNA (PubMed:30017583, PubMed:30392959). N(6)- methyladenosine (m6A) DNA is present at some L1 elements in embryonic stem cells and probably promotes their silencing (By similarity). Demethylates mRNAs containing N(3)-methylcytidine modification (PubMed:31188562). Also able to repair alkylated single-stranded DNA by oxidative demethylation, but with low activity (PubMed:18603530). Also has DNA lyase activity and introduces double-stranded breaks at abasic sites: cleaves both single-stranded DNA and double-stranded DNA at abasic sites, with the greatest activity towards double-stranded DNA with two abasic sites (PubMed:19959401). DNA lyase activity does not require alpha-ketoglutarate and iron and leads to the formation of an irreversible covalent protein-DNA adduct with the 5' DNA product (PubMed:19959401, PubMed:23577621). DNA lyase activity is not required during base excision repair and class switch recombination of the immunoglobulin heavy chain during B lymphocyte activation. May play a role in placental trophoblast lineage differentiation (By similarity).
Cellular Location	Nucleus. Mitochondrion. Note=Mainly localizes in euchromatin, largely excluded from heterochromatin and nucleoli (By similarity). {ECO:0000250|UniProtKB:P0CB42}
Tissue Location	Ubiquitous.

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