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TET1 Antibody

Catalog # ASC11779

Product Information

Application	WB, IF, E, IHC-P
Primary Accession	Q8NFU7
Other Accession	NP_085128, 156139122
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	235309
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	TET1 antibody can be used for detection of TET1 by Western blot at 1 - 2 g/ml. Antibody can also be used for Immunohistochemistry at 5 g/mL. For Immunoflorescence start at 20 g/mL.

Additional Information

Gene ID	80312
Other Names	Methylcytosine dioxygenase TET1, 1.14.11.n2, CXXC-type zinc finger protein 6, Leukemia-associated protein with a CXXC domain, Ten-eleven translocation 1 gene protein, TET1, CXXC6, KIAA1676, LCX
Target/Specificity	TET1; TET1 antibody is human, mouse and rat reactive. This antibody is predicted to not cross-react with TET2 and TET3.
Reconstitution & Storage	TET1 antibody can be stored at 4℃ for three months and -20℃, stable for up to one year.
Precautions	TET1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	TET1 {ECO:0000303|PubMed:28397838, ECO:0000312|HGNC:HGNC:29484}
Function	Dioxygenase that plays a key role in active DNA demethylation, by catalyzing the sequential oxidation of the modified genomic base 5-methylcytosine (5mC) into 5-hydroxymethylcytosine (5hmC), 5-formylcytosine (5fC), and 5-carboxylcytosine (5caC) (PubMed:19372391, PubMed:21496894, PubMed:21778364, PubMed:35798741). In addition to its role in DNA demethylation, plays a more general role in chromatin regulation by recruiting histone modifying protein complexes to alter histone marks and chromatin accessibility, leading to both activation and repression of gene expression (PubMed:33833093). Plays therefore a role in many biological

	processes, including stem cell maintenance, T- and B-cell development, inflammation regulation, genomic imprinting, neural activity or DNA repair (PubMed:31278917). Involved in the balance between pluripotency and lineage commitment of cells and plays a role in embryonic stem cells maintenance and inner cell mass cell specification. Together with QSER1, plays an essential role in the protection and maintenance of transcriptional and developmental programs to inhibit the binding of DNMT3A/3B and therefore de novo methylation (PubMed:33833093). May play a role in pancreatic beta-cell specification during development. In this context, may function as an upstream epigenetic regulator of PAX4 presumably through direct recruitment by FOXA2 to a PAX4 enhancer to preserve its unmethylated status, thereby potentiating PAX4 expression to adopt beta-cell fate during endocrine lineage commitment (PubMed:35798741). Under DNA hypomethylation conditions, such as in female meiotic germ cells, may induce epigenetic reprogramming of pericentromeric heterochromatin (PCH), the constitutive heterochromatin of pericentromeric regions. PCH forms chromocenters in the interphase nucleus and chromocenters cluster at the prophase of meiosis. In this context, may also be essential for chromocenter clustering in a catalytic activity-independent manner, possibly through the recruitment polycomb repressive complex 1 (PRC1) to the chromocenters (By similarity). During embryonic development, may be required for normal meiotic progression in oocytes and meiotic gene activation (By similarity). Binds preferentially to DNA containing cytidine-phosphate- guanosine (CpG) dinucleotides over CpH (H=A, T, and C), hemimethylated- CpG and hemimethylated-hydroxymethyl-CpG (PubMed:29276034).
Cellular Location	Nucleus {ECO:0000250|UniProtKB:Q3URK3}. Chromosome. Note=Localization to chromatin is promoted by monoubiquitination on Lys-1589 [Isoform 2]: Nucleus. Chromosome {ECO:0000250|UniProtKB:Q3URK3}. Note=During DNA replication, localizes to sites of ongoing DNA replication in heterochromatin (in late S phase) in an UHRF1- and CRL4(VprBP)-dependent manner, as a consequence of ubiquitination of the conserved residue Lys-1589. Localization to heterochromatin is independent of catalytic activity
Tissue Location	Expressed in fetal heart, lung and brain, and in adult skeletal muscle, thymus and ovary. Not detected in adult heart, lung or brain. Up-regulated in glioblastoma cells (at protein level) (PubMed:25284789).

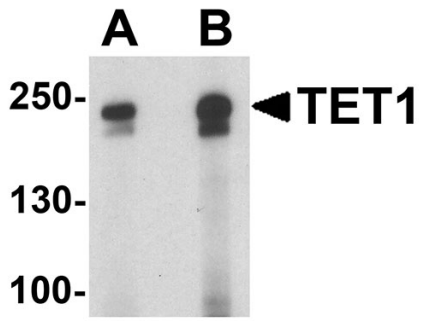
Background

TET1, a member of the ten-eleven-translocation (TET) family of genes, was initially discovered as a fusion partner of MLL in acute myeloid leukemias containing the t(10;11)(q22;q23) (1). It is a methylcytosine dioxygenase that catalyzes the conversion of methylcytosine to 5-hydroxymethylcytosine (2). TET1 expression is regulated during inflammation in both THP-1 and primary dendritic cells, and is a negative transcriptional regulator of IL-1beta following and inflammatory stimulus (3). Recent evidence has shown that TET1 is part of a signaling pathway that regulates breast cancer growth and metastasis (4).

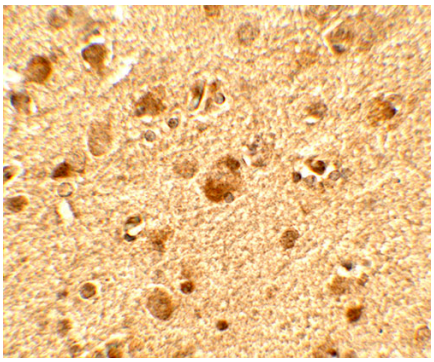
References

Lorsbach RB, Moore J, Mathew S, et al. TET1, a member of a novel protein family, is fused to MLL in acute myeloid leukemia containing the t(10;11)(q22;q23). Leukemia 2003; 17:637-41.
Tahilani M, Koh KP, Shen Y, et al. Conversion of 5-methylcytosine to 5-hydroxymethylcytosine in mammalian DNA by MLL partner TET1. Science 2009; 324:930-5.
Neves-Costa A and Moita LF. TET1 is a negative transcriptional regulator of IL-1b in the THP-1 cell line. Mol. Immunol. 2013; 54:264-70.
Sun M, Song CX, Huang H, et al. HMGA2/TET1/HOXA9 signaling pathway regulates breast cancer growth and metastasis. Proc. Natl. Acad. Sci. USA 2013; 110:9920-5.

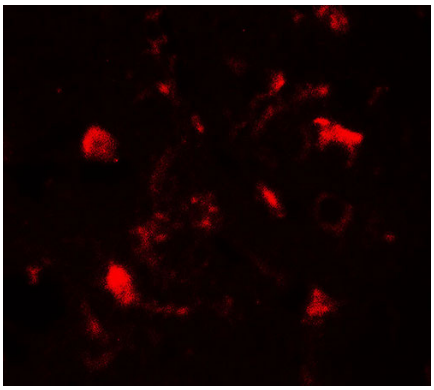
Images



Western blot analysis of TET1 in rat brain tissue lysate with TET1 antibody at (A) 1 and (B) 2 µg/ml.



Immunohistochemistry of TET1 in human brain tissue with TET1 antibody at 5 µg/mL.



Immunofluorescence of TET1 in human brain tissue with TET1 antibody at 20 µg/mL.

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