

FTO Antibody (N-term)

Affinity Purified Rabbit Polyclonal Antibody (Pab)

Catalog # AP6976a

Product Information

Application	WB, IHC-P, FC, E
Primary Accession	Q9C0B1
Reactivity	Human
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB21572
Calculated MW	58282
Antigen Region	1-30

Additional Information

Gene ID	79068
Other Names	Alpha-ketoglutarate-dependent dioxygenase FTO, 11411-, Fat mass and obesity-associated protein, FTO, KIAA1752
Target/Specificity	This FTO antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 1-30 amino acids from the N-terminal region of human FTO.
Dilution	WB~~1:1000 IHC-P~~1:100~500 FC~~1:10~50 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein A column, followed by peptide affinity purification.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	FTO Antibody (N-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	FTO {ECO:0000303 PubMed:17496892, ECO:0000312 HGNC:HGNC:24678}
Function	RNA demethylase that mediates oxidative demethylation of different RNA species, such as mRNAs, tRNAs and snRNAs, and acts as a regulator of fat mass, adipogenesis and energy homeostasis (PubMed: 22002720 ,

PubMed:[25452335](#), PubMed:[26457839](#), PubMed:[26458103](#), PubMed:[28002401](#), PubMed:[30197295](#)). Specifically demethylates N(6)-methyladenosine (m6A) RNA, the most prevalent internal modification of messenger RNA (mRNA) in higher eukaryotes (PubMed:[22002720](#), PubMed:[25452335](#), PubMed:[26457839](#), PubMed:[26458103](#), PubMed:[30197295](#)). M6A demethylation by FTO affects mRNA expression and stability (PubMed:[30197295](#)). Also able to demethylate m6A in U6 small nuclear RNA (snRNA) (PubMed:[30197295](#)). Mediates demethylation of N(6),2'-O- dimethyladenosine cap (m6A(m)), by demethylating the N(6)-methyladenosine at the second transcribed position of mRNAs and U6 snRNA (PubMed:[28002401](#), PubMed:[30197295](#)). Demethylation of m6A(m) in the 5'-cap by FTO affects mRNA stability by promoting susceptibility to decapping (PubMed:[28002401](#)). Also acts as a tRNA demethylase by removing N(1)-methyladenine from various tRNAs (PubMed:[30197295](#)). Has no activity towards 1-methylguanine (PubMed:[20376003](#)). Has no detectable activity towards double-stranded DNA (PubMed:[20376003](#)). Also able to repair alkylated DNA and RNA by oxidative demethylation: demethylates single-stranded RNA containing 3-methyluracil, single- stranded DNA containing 3-methylthymine and has low demethylase activity towards single-stranded DNA containing 1-methyladenine or 3- methylcytosine (PubMed:[18775698](#), PubMed:[20376003](#)). Ability to repair alkylated DNA and RNA is however unsure in vivo (PubMed:[18775698](#), PubMed:[20376003](#)). Involved in the regulation of fat mass, adipogenesis and body weight, thereby contributing to the regulation of body size and body fat accumulation (PubMed:[18775698](#), PubMed:[20376003](#)). Involved in the regulation of thermogenesis and the control of adipocyte differentiation into brown or white fat cells (PubMed:[26287746](#)). Regulates activity of the dopaminergic midbrain circuitry via its ability to demethylate m6A in mRNAs (By similarity). Plays an oncogenic role in a number of acute myeloid leukemias by enhancing leukemic oncogene-mediated cell transformation: acts by mediating m6A demethylation of target transcripts such as MYC, CEBPA, ASB2 and RARA, leading to promote their expression (PubMed:[28017614](#), PubMed:[29249359](#)).

Cellular Location

Nucleus. Nucleus speckle. Cytoplasm Note=Localizes mainly in the nucleus, where it is able to demethylate N(6)-methyladenosine (m6A) and N(6),2'-O-dimethyladenosine cap (m6A(m)) in U6 small nuclear RNA (snRNA), N(1)-methyladenine from tRNAs and internal m6A in mRNAs (PubMed:[30197295](#)). In the cytoplasm, mediates demethylation of m6A and m6A(m) in mRNAs and N(1)-methyladenine from tRNAs (PubMed:[30197295](#)).

Tissue Location

Ubiquitously expressed, with relatively high expression in adrenal glands and brain; especially in hypothalamus and pituitary (PubMed:[17434869](#), PubMed:[17496892](#)). Highly expressed in highly expressed in acute myeloid leukemias (AML) with t(11;11)(q23;23) with KMT2A/MLL1 rearrangements, t(15;17)(q21;q21)/PML-RARA, FLT3-ITD, and/or NPM1 mutations (PubMed:[28017614](#)).

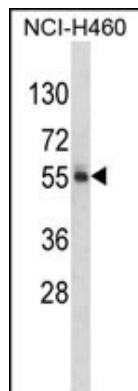
Background

The precise function of FTO remains to be determined.

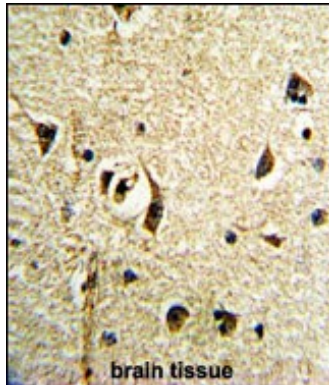
References

Scott,L.J., et.al., Science 316 (5829), 1341-1345 (2007)

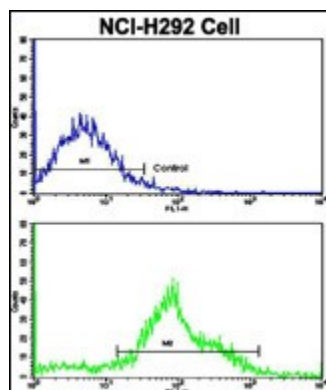
Images



Western blot analysis of FTO Antibody (N-term) (Cat. #AP6976a) in NCI-H460 cell line lysates (35ug/lane). FTO (arrow) was detected using the purified Pab.



Formalin-fixed and paraffin-embedded human brain tissue reacted with FTO Antibody (N-term), which was peroxidase-conjugated to the secondary antibody, followed by DAB staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated.



Flow cytometric analysis of NCI-H292 cells using FTO Antibody (N-term)(bottom histogram) compared to a negative control cell (top histogram). FITC-conjugated goat-anti-rabbit secondary antibodies were used for the analysis.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.