

FTO Antibody (N-term)

Affinity Purified Rabbit Polyclonal Antibody (Pab) Catalog # AP6976a

Specification

FTO Antibody (N-term) - Product Information

Application	FC, IHC-P, WB,E
Primary Accession	<u>09C0B1</u>
Reactivity	Human
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	58282
Antigen Region	1-30

FTO Antibody (N-term) - 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 FC~~1:10~50 IHC-P~~1:50~100 WB~~1:1000 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.

FTO Antibody (N-term) - 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, adjpogenesis 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:<u>30197295</u>). 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:<u>20376003</u>). 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:<u>18775698</u>, PubMed:<u>20376003</u>). 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).

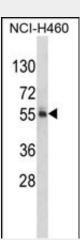
FTO Antibody (N-term) - Protocols

Provided below are standard protocols that you may find useful for product applications.

- <u>Western Blot</u>
- Blocking Peptides
- Dot Blot
- <u>Immunohistochemistry</u>
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- <u>Cell Culture</u>



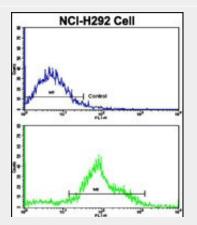
FTO Antibody (N-term) - Images



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.

FTO Antibody (N-term) - Background



The precise function of FTO remains to be determined.

FTO Antibody (N-term) - References

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