

FTO Antibody (clone 5-2H10)
Mouse Monoclonal Antibody
Catalog # ALS15272**Specification**

FTO Antibody (clone 5-2H10) - Product Information

Application	WB, IHC
Primary Accession	O9C0B1
Reactivity	Human, Mouse, Rat, Sheep, Horse, Bovine, Dog
Host	Mouse
Clonality	Monoclonal
Calculated MW	58kDa KDa

FTO Antibody (clone 5-2H10) - Additional Information**Gene ID** 79068**Other Names**

Alpha-ketoglutarate-dependent dioxygenase FTO, 1.14.11.-, Fat mass and obesity-associated protein, FTO, KIAA1752

Target/Specificity

Specific for the ~58 kDa Fto protein in Western blots of rat testes lysate. The antibody has also been used for immunocytochemistry with neuronal progenitor cells.

Reconstitution & Storage

Short term 4°C, long term aliquot and store at -20°C, avoid freeze thaw cycles. Store undiluted.

Precautions

FTO Antibody (clone 5-2H10) is for research use only and not for use in diagnostic or therapeutic procedures.

FTO Antibody (clone 5-2H10) - 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:26458103, PubMed:28002401, PubMed:30197295, PubMed:26457839, PubMed:25452335). Specifically demethylates N(6)- methyladenosine (m6A) RNA, the most prevalent internal modification of messenger RNA (mRNA) in higher eukaryotes (PubMed:<a

[22002720](http://www.uniprot.org/citations/22002720), PubMed: [26458103](http://www.uniprot.org/citations/26458103), PubMed: [30197295](http://www.uniprot.org/citations/30197295), PubMed: [26457839](http://www.uniprot.org/citations/26457839), PubMed: [25452335](http://www.uniprot.org/citations/25452335)). M6A demethylation by FTO affects mRNA expression and stability (PubMed: [30197295](http://www.uniprot.org/citations/30197295)). Also able to demethylate m6A in U6 small nuclear RNA (snRNA) (PubMed: [30197295](http://www.uniprot.org/citations/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](http://www.uniprot.org/citations/28002401), PubMed: [30197295](http://www.uniprot.org/citations/30197295)). Demethylation of m6A(m) in the 5'-cap by FTO affects mRNA stability by promoting susceptibility to decapping (PubMed: [28002401](http://www.uniprot.org/citations/28002401)). Also acts as a tRNA demethylase by removing N(1)-methyladenine from various tRNAs (PubMed: [30197295](http://www.uniprot.org/citations/30197295)). Has no activity towards 1-methylguanine (PubMed: [20376003](http://www.uniprot.org/citations/20376003)). Has no detectable activity towards double-stranded DNA (PubMed: [20376003](http://www.uniprot.org/citations/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](http://www.uniprot.org/citations/18775698), PubMed: [20376003](http://www.uniprot.org/citations/20376003)). Ability to repair alkylated DNA and RNA is however unsure in vivo (PubMed: [18775698](http://www.uniprot.org/citations/18775698), PubMed: [20376003](http://www.uniprot.org/citations/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](http://www.uniprot.org/citations/18775698), PubMed: [20376003](http://www.uniprot.org/citations/20376003)). Involved in the regulation of thermogenesis and the control of adipocyte differentiation into brown or white fat cells (PubMed: [26287746](http://www.uniprot.org/citations/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](http://www.uniprot.org/citations/28017614), PubMed: [29249359](http://www.uniprot.org/citations/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

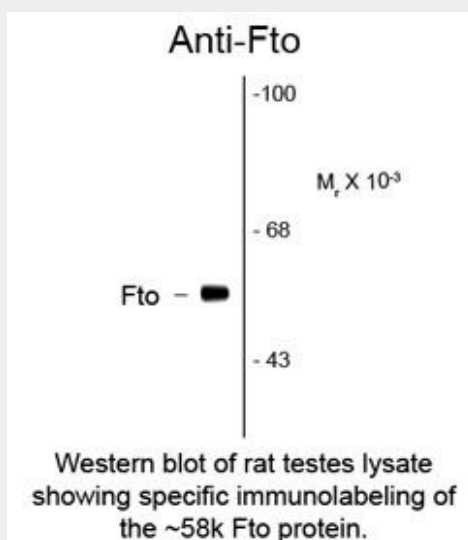
Ubiquitously expressed, with relatively high expression in adrenal glands and brain; especially in hypothalamus and pituitary (PubMed:17434869, PubMed:17496892). Highly expressed in highly expressed in acute myeloid leukemias (AML) with t(11;11)(q23;23) with KMT2A/MLL1 rearrangements, t(15;17)(q21;q21)/PML-RARA,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

FTO Antibody (clone 5-2H10) - Protocols

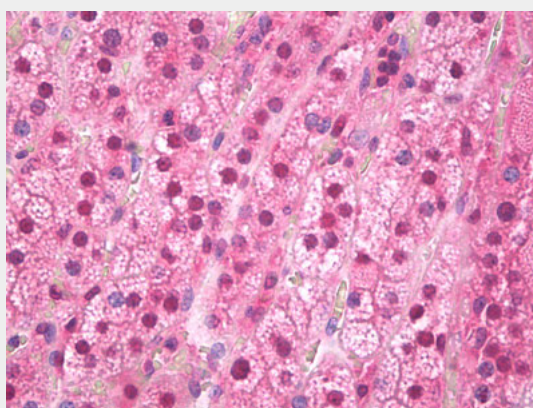
Provided below are standard protocols that you may find useful for product applications.

- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

FTO Antibody (clone 5-2H10) - Images



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Anti-FTO antibody IHC of human adrenal cortex.

FTO Antibody (clone 5-2H10) - Background

Dioxygenase that repairs alkylated DNA and RNA by oxidative demethylation. Has highest activity towards single- stranded RNA containing 3-methyluracil, followed by single- stranded DNA containing 3-methylthymine. Has low demethylase activity towards single-stranded DNA containing

1-methyladenine or 3-methylcytosine. Specifically demethylates N(6)-methyladenosine (m6A) RNA, the most prevalent internal modification of messenger RNA (mRNA) in higher eukaryotes. Has no activity towards 1- methylguanine. Has no detectable activity towards double-stranded DNA. Requires molecular oxygen, alpha-ketoglutarate and iron. Contributes to the regulation of the global metabolic rate, energy expenditure and energy homeostasis. Contributes to the regulation of body size and body fat accumulation.

FTO Antibody (clone 5-2H10) - References

Nagase T.,et al.DNA Res. 7:347-355(2000).
Martin J.,et al.Nature 432:988-994(2004).
Dina C.,et al.Nat. Genet. 39:724-726(2007).
Frayling T.M.,et al.Science 316:889-894(2007).
Jia G.,et al.FEBS Lett. 582:3313-3319(2008).