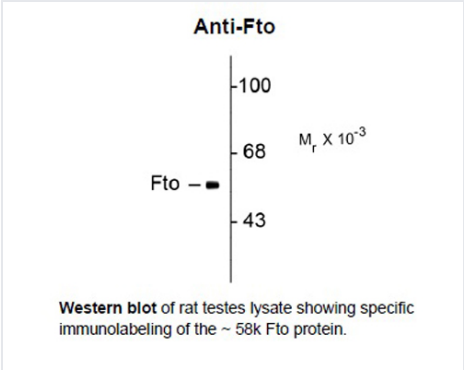
FTO Antibody – Mouse Monoclonal

PRODUCT OVERVIEW

Product Name	FTO (Fat mass and obesity related protein), Monoclonal Antibody
Full Product Name	Anti-Fto (Fat mass and obesity-associated protein)
Product Gene Name	anti-FTO antibody
Clonality	Monoclonal
Isotype	IgG
Clone Number	5-2H10
Host	Mouse
Species Reactivity	Human, mouse, rat
Form/Format	100 ul in 10 mM HEPES (pH 7.5), 150 mM NaCl, 100 ug BSA per ml and 50% glycerol. Adequate amount of material to conduct 10-mini Western Blots.
Purity/Purification	Protein G purified (Protein G purified culture supernatant.)
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.
Preparation and Storage	Store at -20 degree C in undiluted aliquots; stable for up to one year after date of receipt. Avoid freeze/thaw cycles.
Molecular Weight	58
Chromosome Location	Chromosome: 16; NC_000016.10 (53703963..54114467). Location: 16q12.2
OMIM	610966
3D Structure	ModBase 3D Structure for Q9C0B1
Antigen	Synthetic peptide from the N-terminal region of rat Fto.
Immunogen Information	Synthetic peptide corresponding to amino acid residues from the N-terminal region conjugated to KLH
Immunogen Species	Human
Reactivity Assumed Based on 100% Sequence Homology	Bovine, canine, horse, non-human primate, sheep
Species Reactivity Note	The antibody has been directly tested for reactivity in human, mouse and rat. The immunogen sequence has 100% homology with bovine, canine, horse, non-human primate and sheep
Biological Significance	The FTO gene is the most robust gene for common obesity characterized to date. FTO gene expression has been found to be significantly upregulated in the hypothalamus of rats after food deprivation and strongly negatively correlated with the expression of orexin peptide which is involved in the stimulation of food intake (Fredricksson R et al., 2008). Deletion analysis of FTO gene in mice showed that Fto is functionally involved in the control of both energy intake and energy expenditure (Fischer J et al., 2009)
Applications Tested/Suitable for anti-FTO antibody	Western Blot (WB), Immunofluorescence (IF)
Application Notes for anti-FTO antibody	Quality Control: Western blots performed on each lot. WB: 1:1,000 IF: 1:100
Related Product Information for anti-FTO antibody	MBS500035 is an antibody targeting FTO. Also known as Anti-Fto (Fat mass and obesity-associated protein). Reactive in Human, mouse, rat. Host: Mouse. Mouse monoclonal antibody

Product References and Citations for anti-FTO antibody	• Fredriksson R, Hägglund M, Olszewski PK, Stephansson O, Jacobsson JA, Olszewska AM, Levine AS, Lindblom J, Schiöth HB (2008). The obesity gene, FTO, is of ancient origin, upregulated during food deprivation and expressed in neurons of feeding-related nuclei of the brain. Endocrinology 149: 2062. • Fischer J, Koch L, Emmerling C, Vierkotten J, Peters T, Brüning JC, Rüther U. (2009). Inactivation of the Fto gene protects from obesity. Nature 458: 894.
Other Notes	Small volumes of anti-FTO antibody vial(s) may occasionally become entrapped in the seal of the product vial during shipment and storage. If necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the container`s cap. Certain products may require to ship with dry ice and additional dry ice fee may apply.



Western blot of rat testes lysate showing specific immunolabeling of the ~ 58k Fto protein.

Testing Data of anti-FTO antibody

ADDITIONAL DETAILS

NCBI/Uniprot data below describe general gene information for FTO. It may not necessarily be applicable to this product.

NCBI GI #	122937263
NCBI GeneID	79068
NCBI Accession #	NP_001073901.1
UniProt Primary Accession #	Q9C0B1
UniProt Secondary Accession #	Q0P676; Q7Z785; A2RUH1; B2RNS0
UniProt Related Accession #	Q9C0B1
GenBank Nucleotide #	NM_001080432.2
NCBI Official Full Name	alpha-ketoglutarate-dependent dioxygenase FTO
NCBI Official Synonym Full Names	fat mass and obesity associated
NCBI Official Symbol	FTO
NCBI Official Synonym Symbols	ALKBH9
UniProt Protein Name	Alpha-ketoglutarate-dependent dioxygenase FTO
UniProt Synonym Protein Names	Fat mass and obesity-associated protein
Protein Family	Alpha-ketoglutarate-dependent dioxygenase
UniProt Gene Name	FTO
UniProt Synonym Gene Names	KIAA1752
UniProt Entry Name	FTO_HUMAN
NCBI Protein Information	alpha-ketoglutarate-dependent dioxygenase FTO; protein fto; AlkB homolog 9; fat mass and obesity-associated protein

NCBI Summary for FTO	This gene is a nuclear protein of the AlkB related non-haem iron and 2-oxoglutarate-dependent oxygenase superfamily but the exact physiological function of this gene is not known. Other non-heme iron enzymes function to reverse alkylated DNA and RNA damage by oxidative demethylation. Studies in mice and humans indicate a role in nervous and cardiovascular systems and a strong association with body mass index, obesity risk, and type 2 diabetes. [provided by RefSeq, Jul 2011]
UniProt Comments for FTO	Function: 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. Ref.6 Ref.10 Cofactor: Binds 1 Fe2+ ion per subunit. Ref.10 Enzyme regulation: Activated by ascorbate. Inhibited by N-oxalylglycine, fumarate and succinate By similarity. Ref.10 Subunit structure: Monomer. May also exist as homodimer By similarity. Subcellular location: Nucleus. Nucleus speckle. Tissue specificity: Ubiquitously expressed, with relatively high expression in adrenal glands and brain; especially in hypothalamus and pituitary. Ref.4 Ref.5 Domain: The 3D-structure of the Fe2OG dioxygenase domain is similar to that of the Fe2OG dioxygenase domain found in the bacterial DNA repair dioxygenase alkB and its mammalian orthologs, but sequence similarity is very low. As a consequence, the domain is not detected by protein signature databases. Ref.10 Polymorphism: At least one intronic variation within the gene predisposes to childhood and adult obesity. Involvement in disease: Growth retardation developmental delay coarse facies early death (GDFD) [MIM:612938]: A severe polymalformation syndrome characterized by postnatal growth retardation, microcephaly, severe psychomotor delay, functional brain deficits and characteristic facial dysmorphism. In some patients, structural brain malformations, cardiac defects, genital anomalies, and cleft palate are observed. Early death occurs by the age of 3 years.Note: The disease is caused by mutations affecting the gene represented in this entry. Ref.11 Sequence similarities: Belongs to the fto family. Biophysicochemical propertiespH dependence:Optimum pH is 5.5-6. Ref.6 Sequence caution: The sequence BAB21843.1 differs from that shown. Reason: Erroneous initiation. Translation N-terminally shortened.
Research Articles on FTO	**1.** Downregulation was seen only with essential amino-acid deficiency and not with non-essential amino acids. These data suggest that FTO might have a role in the sensing of essential amino-acid availability.
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