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Anti-FTO Monoclonal Antibody

Catalog # ABO14598

Product Information

Application	WB, IHC, IF, ICC
Primary Accession	Q9C0B1
Host	Rabbit
Isotype	Rabbit IgG
Reactivity	Human
Clonality	Monoclonal
Format	Liquid
Description	Anti-FTO Monoclonal Antibody . Tested in WB, IHC, ICC/IF applications. This antibody reacts with Human.

Additional Information

Gene ID	79068
Other Names	Alpha-ketoglutarate-dependent dioxygenase FTO, Fat mass and obesity-associated protein, U6 small nuclear RNA (2'-O-methyladenosine-N(6)-)-demethylase FTO, 1.14.11.-, U6 small nuclear RNA N(6)-methyladenosine-demethylase FTO, 1.14.11.-, mRNA (2'-O-methyladenosine-N(6)-)-demethylase FTO, m6A(m)-demethylase FTO, 1.14.11.-, mRNA N(6)-methyladenosine demethylase FTO, 1.14.11.53, tRNA N1-methyl adenine demethylase FTO, 1.14.11.-, FTO {ECO:0000303|PubMed:17496892, ECO:0000312|HGNC:HGNC:24678}
Calculated MW	58282
Application Details	WB 1:1000-1:5000 IHC 1:50-1:200 ICC/IF 1:50-1:200
Source	Eukaryota
Contents	Rabbit IgG in phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol, 0.4-0.5mg/ml BSA.
Clone Names	Clone: AEAA-6
Immunogen	A synthesized peptide derived from human FTO 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.
Purification	Affinity-chromatography
Storage	Store at -20°C for one year. For short term storage and frequent use, store at 4°C for up to one month. Avoid repeated freeze-thaw cycles.

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).

Images

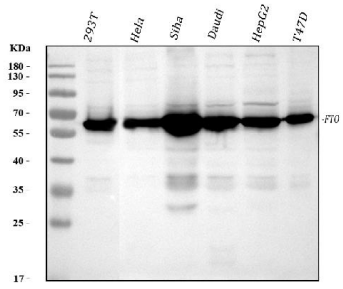
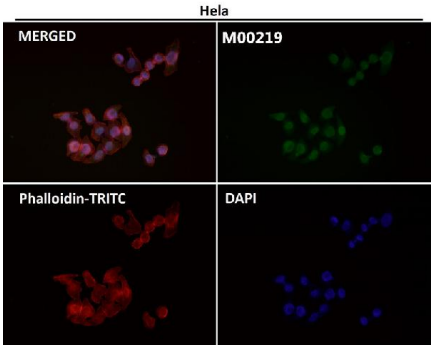
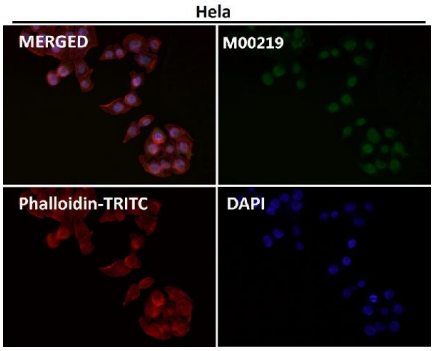


Figure 1. Western blot analysis of FTO using anti-FTO antibody (M00219).
Electrophoresis was performed on a 5-20% SDS-PAGE gel at 70V (Stacking gel) / 90V (Resolving gel) for 2-3 hours. The sample well of each lane was loaded with 30 ug of sample under reducing conditions.
Lane 1: human 293T whole cell lysates,
Lane 2: human Hela whole cell lysates,
Lane 3: human SiHa whole cell lysates,
Lane 4: human Daudi whole cell lysates,
Lane 5: human HepG2 whole cell lysates,
Lane 6: human T-47D whole cell lysates.
After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-FTO antigen affinity purified monoclonal antibody (Catalog # M00219) at 1:1000 overnight at 4°C, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal is developed using an Enhanced Chemiluminescent detection (ECL) kit (Catalog # EK1002) with Tanon 5200 system. A specific band was detected for FTO at approximately 58 kDa. The expected band size for FTO is at 58 kDa.



Immunofluorescent analysis using the Antibody at 1:50 dilution.



Immunofluorescent analysis using the Antibody at 1:150 dilution.

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