

# FTO Polyclonal Antibody

Catalog # AP73216

## Product Information

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<b>Application</b>	WB, E
<b>Primary Accession</b>	<a href="#">Q9C0B1</a>
<b>Reactivity</b>	Human, Mouse, Rat
<b>Host</b>	Rabbit
<b>Clonality</b>	Polyclonal
<b>Calculated MW</b>	58282

## Additional Information

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<b>Gene ID</b>	79068
<b>Other Names</b>	FTO; KIAA1752; Alpha-ketoglutarate-dependent dioxygenase FTO; Fat mass and obesity-associated protein
<b>Dilution</b>	WB--Western Blot: 1/500 - 1/2000. ELISA: 1/20000. Not yet tested in other applications. E--N/A
<b>Format</b>	Liquid in PBS containing 50% glycerol, 0.5% BSA and 0.09% (W/V) sodium azide.
<b>Storage Conditions</b>	-20°C

## Protein Information

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<b>Name</b>	FTO {ECO:0000303   PubMed:17496892, ECO:0000312   HGNC:HGNC:24678}
<b>Function</b>	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: <a href="#">22002720</a> , PubMed: <a href="#">25452335</a> , PubMed: <a href="#">26457839</a> , PubMed: <a href="#">26458103</a> , PubMed: <a href="#">28002401</a> , PubMed: <a href="#">30197295</a> ). Specifically demethylates N(6)-methyladenosine (m6A) RNA, the most prevalent internal modification of messenger RNA (mRNA) in higher eukaryotes (PubMed: <a href="#">22002720</a> , PubMed: <a href="#">25452335</a> , PubMed: <a href="#">26457839</a> , PubMed: <a href="#">26458103</a> , PubMed: <a href="#">30197295</a> ). M6A demethylation by FTO affects mRNA expression and stability (PubMed: <a href="#">30197295</a> ). Also able to demethylate m6A in U6 small nuclear RNA (snRNA) (PubMed: <a href="#">30197295</a> ). 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: <a href="#">28002401</a> , PubMed: <a href="#">30197295</a> ). Demethylation of m6A(m) in the 5'-cap by FTO affects mRNA stability by promoting susceptibility to decapping (PubMed: <a href="#">28002401</a> ). Also acts as a tRNA demethylase by removing N(1)-methyladenine from various tRNAs (PubMed: <a href="#">30197295</a> ). 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 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

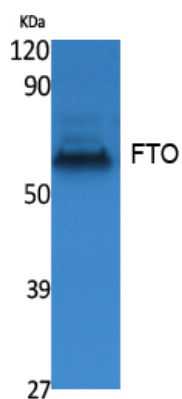
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RNA demethylase that mediates oxidative demethylation of different RNA species, such as mRNAs, tRNAs and snRNAs, and acts as a regulator of fat mass, adipogenesis and energy homeostasis (PubMed:[22002720](#), PubMed:[26458103](#), PubMed:[28002401](#), 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:[22002720](#), PubMed:[26458103](#), PubMed:[30197295](#), PubMed:[26457839](#), PubMed:[25452335](#)). 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](#)).

## Images

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Western Blot analysis of extracts from K562 cells, using FTO Polyclonal Antibody.. Secondary antibody was diluted at 1:20000

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