

# PRODUCT INFORMATION



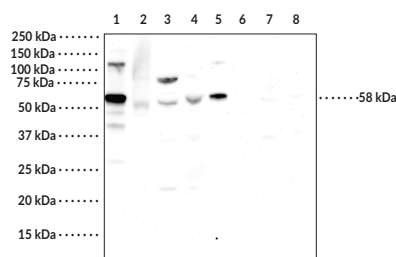
## FTO (human) Polyclonal Antibody

Item No. 29021

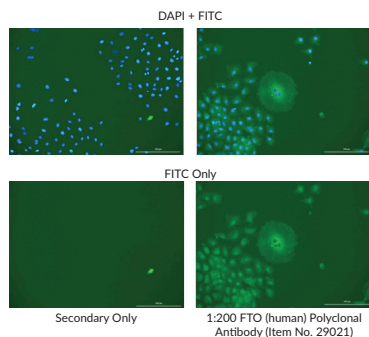
### Overview and Properties

<b>Contents:</b>	This vial contains 500 µg of protein A-purified polyclonal antibody.
<b>Synonyms:</b>	Fat Mass- and Obesity-associated Protein, α-Ketoglutarate-dependent Dioxygenase FTO
<b>Immunogen:</b>	Recombinant human FTO protein
<b>Species Reactivity:</b>	(+) Human; other species not tested
<b>Uniprot No.:</b>	Q9COB1
<b>Form:</b>	Liquid
<b>Storage:</b>	-20°C (as supplied)
<b>Stability:</b>	≥3 years
<b>Storage Buffer:</b>	PBS, pH 7.2, with 50% glycerol and 0.02% sodium azide
<b>Host:</b>	Rabbit
<b>Applications:</b>	ELISA, Immunofluorescence (IF), Immunohistochemistry (IHC), and Western blot (WB); the recommended starting dilution is 1:200. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

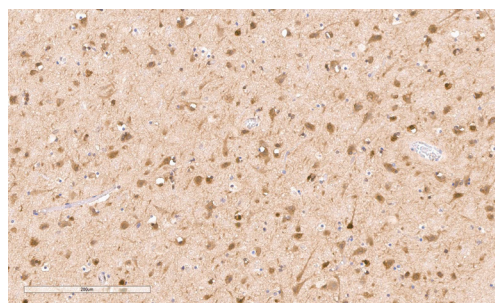
### Images



Lane 1: FTO Recombinant Protein (0.005 µg)  
Lane 2: HEK293 Cell Lysate (50 µg)  
Lane 3: K562 Cell Lysate (50 µg)  
Lane 4: A549 Cell Lysate (50 µg)  
Lane 5: FTO Recombinant Protein (0.005 µg) (Antibody blocked with 10 µg/ml FTO protein)  
Lane 6: HEK293 Cell Lysate (50 µg) (Antibody blocked with 10 µg/ml FTO protein)  
Lane 7: K562 Cell Lysate (50 µg) (Antibody blocked with 10 µg/ml FTO protein)  
Lane 8: A549 Cell Lysate (50 µg) (Antibody blocked with 10 µg/ml FTO protein)



Immunofluorescence analysis of paraformaldehyde-fixed, A549 cells. After incubation of FTO (human) Polyclonal Antibody (Item No. 29021), at a 1:200 dilution (or negative control) cells were incubated with FITC labeled anti-rabbit IgG (Item No. 10006588), followed by DAPI nuclear stain. Images show FITC alone or both fluorescence channels to highlight nuclear staining (where applicable).



Immunohistochemistry analysis of formalin-fixed, paraffin-embedded (FFPE) human brain, cortex, tissue after heat induced antigen retrieval in pH 6.0 citrate buffer. After incubation with FTO (human) Polyclonal Antibody, (Item No. 29021) at a 1:200 dilution, slides were incubated with biotinylated secondary antibody, followed by alkaline phosphatase-streptavidin and chromogen (DAB).

**WARNING**  
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

**SAFETY DATA**  
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

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**CAYMAN CHEMICAL**  
1180 EAST ELLSWORTH RD  
ANN ARBOR, MI 48108 · USA  
PHONE: [800] 364-9897  
[734] 971-3335  
FAX: [734] 971-3640  
CUSTSERV@CAYMANCHEM.COM  
WWW.CAYMANCHEM.COM

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## Description

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Fat mass and obesity-associated (FTO) protein is a nuclear-residing N<sup>6</sup>-methyladenosine (m<sup>6</sup>A) RNA demethylase that is encoded by the *FTO* gene in humans.<sup>1-3</sup> It is composed of an N-terminal domain similar in structure to members of the AlkB non-heme iron-containing dioxygenase family and a C-terminal domain that is not similar to other known domains.<sup>4</sup> The N-terminal domain contains a loop not found in other AlkB proteins that may be responsible for its specificity for single-stranded nucleic acids. *FTO* is highly expressed during development and in the adult brain, adipose tissue, and muscle and its expression is modified by the availability of essential amino acids *in vitro* and following fasting or a chronic high-fat diet *in vivo* in mice.<sup>3,5,6</sup> *FTO* regulates mRNA splicing and is required for adipogenesis.<sup>1,7</sup> Knockdown of *Fto* in mice increases m<sup>6</sup>A-containing transcripts of the adipogenesis-related gene *Runx1t1*, enhances binding of the splicing regulatory protein Srsf2 to *Runx1t1*, which induces the inclusion of *Runx1t1* exon 6 and the production of long *Runx1t1* transcripts, and leads to inhibition of pre-adipocyte differentiation. *Fto* is associated with obesity in transgenic mouse models, with overexpression increasing food intake and weight gain and knockout reducing body weight, body length, fat mass, and white adipose tissue, as well as increasing energy expenditure while decreasing locomotor activity.<sup>2</sup> *FTO* SNPs are associated with body mass index and obesity risk in humans.<sup>6,8</sup> Cayman's *FTO* (human) Polyclonal Antibody can be used for ELISA, Immunohistochemistry (IHC), and Western blot applications. The antibody recognizes *FTO* at 58 kDa from human samples.

## References

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1. Zhao, X., Yang, Y., Sun, B.-F., *et al.* FTO-dependent demethylation of N<sup>6</sup>-methyladenosine regulates mRNA splicing and is required for adipogenesis. *Cell Res.* **24**(12), 1403-1419 (2014).
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6. Gulati, P., Cheung, M.K., Antrobus, R., *et al.* Role for the obesity-related *FTO* gene in the cellular sensing of amino acids. *Proc. Natl. Acad. Sci. USA* **110**(7), 2557-2562 (2013).
7. Ben-Haim, M.S., Moshitch-Moshkovitz, S., and Rechavi, G. FTO: Linking m<sup>6</sup>A demethylation to adipogenesis. *Cell Res.* **25**(1), 3-4 (2015).
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