Revision 1

Store at -20C

#14386

FTO Antibody

Cell Signaling TECHNOLOGY®

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For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W	H	Endogenous	60	Rabbit	#Q9C0B1	79068

Product Usage Information

Application	Dilution
Western Blotting	1:1000

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. Store at –20°C. *Do not aliquot the antibody.*

Specificity/Sensitivity

FTO Antibody recognizes endogenous levels of total FTO protein.

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Leu464 of human FTO protein. Antibodies are purified by protein A and peptide affinity chromatography.

Background

FTO (fat mass and obesity-associated protein) is the first obesity gene product identified by genome-wide association studies and it is associated with the largest effect size for this class of proteins (1-4). Multiple single-nucleotide polymorphisms (SNPs) in the first intron of the *FTO* gene have been associated with increased body weight and obesity. Further studies reported that *FTO* risk alleles were associated with an increase in energy intake, a reduction of activity, and possibly an increased daily fat intake (4).

FTO is a DNA and RNA demethylase that catalyzes the oxidative demethylation of thymidine and uracil. Among its targets is an mRNA subset involved in regulation of learning, reward behavior, motor functions, and feeding (5). Loss of the *FTO* gene in mice leads to postnatal growth retardation and a significant reduction in adipose tissue. Mice deficient in the *FTO* gene have lean body mass due to increased energy expenditure and systemic activation of sympathetic neurons, while overexpression of FTO in mice leads to increased food intake and results in obesity. These results demonstrate that FTO is functionally involved in energy homeostasis (6-8).

Background References

1. Frayling, T.M. et al. (2007) *Science* 316, 889-94.
2. Scuteri, A. et al. (2007) *PLoS Genet* 3, e115.
3. Dina, C. et al. (2007) *Nat Genet* 39, 724-6.
4. Gulati, P. and Yeo, G.S. (2013) *Diabetologia* 56, 2113-21.
5. Hess, M.E. et al. (2013) *Nat Neurosci* 16, 1042-8.
6. Fischer, J. et al. (2009) *Nature* 458, 894-8.
7. Tews, D. et al. (2013) *Endocrinology* 154, 3141-51.
8. Church, C. et al. (2010) *Nat Genet* 42, 1086-92.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

W: Western Blotting

Cross-Reactivity Key

H: Human

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Limited Uses

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