

# FADS1 (E-12): sc-132678

## BACKGROUND

Members of the fatty acid desaturase (FADS) family, including FADS1, FADS2 and FADS3, regulate the desaturation of fatty acids by introducing double bonds between defined carbons of fatty acyl chains, thereby playing an essential role in the lipid metabolic pathway. Members of this family share N-terminal cytochrome  $\beta 5$ -like domains, C-terminal multiple membrane-spanning desaturase regions and 3 histidine box motifs. It has been suggested that single nucleotide polymorphisms (SNPs) within the FADS gene cluster may be associated with diseases related to inflammation and immunity processes. FADS1, also known as  $\delta 5$  desaturase or D5D, is a 444 amino acid protein that is abundantly expressed in liver, brain, adrenal gland and heart. Localized to the endoplasmic reticulum where it exists as a multi-pass membrane protein, FADS1 catalyzes the biosynthesis of highly unsaturated fatty acids from linoleic acid and  $\alpha$ -linolenic acid. Additionally, FADS1 functions to catalyze the desaturation of both dihomo- $\gamma$ -linoleic acid (DHGLA) and eicosatetraenoic acid (EA) to produce arachidonic acid (AA) and eicosapentaenoic acid (EPA), respectively.

## REFERENCES

1. Cho, H.P., et al. 1999. Cloning, expression, and fatty acid regulation of the human  $\delta$ -5 desaturase. *J. Biol. Chem.* 274: 37335-37339.
2. Marquardt, A., et al. 2000. cDNA cloning, genomic structure, and chromosomal localization of three members of the human fatty acid desaturase family. *Genomics* 66: 175-183.
3. Online Mendelian Inheritance in Man, OMIM<sup>™</sup>. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 606148. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
4. Schaeffer, L., et al. 2006. Common genetic variants of the FADS1 FADS2 gene cluster and their reconstructed haplotypes are associated with the fatty acid composition in phospholipids. *Hum. Mol. Genet.* 15: 1745-1756.
5. Dreesen, T.D., et al. 2006. A newly discovered member of the fatty acid desaturase gene family: a non-coding, antisense RNA gene to  $\delta 5$ -desaturase. *Prostaglandins Leukot. Essent. Fatty Acids* 75: 97-106.
6. Risé, P., et al. 2007.  $\delta 5$  desaturase mRNA levels are increased by simvastatin via SREBP-1 at early stages, not via PPAR $\alpha$ , in THP-1 cells. *Eur. J. Pharmacol.* 571: 97-105.
7. Malerba, G., et al. 2008. SNPs of the FADS gene cluster are associated with polyunsaturated fatty acids in a cohort of patients with cardiovascular disease. *Lipids* 43: 289-299.

## CHROMOSOMAL LOCATION

Genetic locus: FADS1 (human) mapping to 11q12.2; Fads1 (mouse) mapping to 19 A.

## SOURCE

FADS1 (E-12) is an affinity purified goat polyclonal antibody raised against a peptide mapping within a cytoplasmic domain of FADS1 of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-132678 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

FADS1 (E-12) is recommended for detection of FADS1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); non cross-reactive with other FADS family members.

FADS1 (E-12) is also recommended for detection of FADS1 in additional species, including canine and porcine.

Suitable for use as control antibody for FADS1 siRNA (h): sc-96474, FADS1 siRNA (m): sc-145002, FADS1 shRNA Plasmid (h): sc-96474-SH, FADS1 shRNA Plasmid (m): sc-145002-SH, FADS1 shRNA (h) Lentiviral Particles: sc-96474-V and FADS1 shRNA (m) Lentiviral Particles: sc-145002-V.

Molecular Weight of FADS1: 52 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204 or HeLa nuclear extract: sc-2120.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker<sup>™</sup> compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker<sup>™</sup> Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz<sup>™</sup> Mounting Medium: sc-24941.

## STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.


 MONOS  
 Satisfation  
 Guaranteed

Try **FADS1 (7-RY13): sc-134337**, our highly recommended monoclonal alternative to FADS1 (E-12).