SANTA CRUZ BIOTECHNOLOGY, INC.

FADS2 (M-50): sc-98537

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 β5-like domains, C-terminal multiple membrane-spanning desaturase regions and 3 histidine box motifs. FADS2 (fatty acid desaturase 2), also known as D6D, DES6, LLCDL2 or TU13, is a 444 amino acid multi-pass membrane protein that localizes to the endoplasmic reticulum and contains one cytochrome β5 heme-binding domain. Expressed in adult and fetal heart and in adult liver, brain, lung and retina, FADS2 functions as a component of a lipid metabolic pathway and catalyzes the first step in the pathway, namely the formation of unsaturated fatty acids from polyunsaturated fatty acids. Defects in the gene encoding FADS2 are the cause of cause of fatty acid Δ-6-desaturase deficiency, an affliction that is characterized by skin abnormalities, corneal ulceration and growth failure. Multiple isoforms of FADS2 exist due to alternative splicing events.

REFERENCES

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1. Cho, H.P., et al. 1999. Cloning, expression, and nutritional regulation of the mammalian Delta-6-desaturase. J. Biol. Chem. 274: 471-477.
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™. 2001. Johns Hopkins University, Baltimore, MD. MIM Number: 606149. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
4. Martinelli, N., et al. 2008. FADS genotypes and desaturase activity estimated by the ratio of arachidonic acid to linoleic acid are associated with inflammation and coronary artery disease. Am. J. Clin. Nutr. 88: 941-949.
5. Xie, L., et al. 2008. Genetic variants of the FADS1 FADS2 gene cluster are associated with altered (n-6) and (n-3) essential fatty acids in plasma and erythrocyte phospholipids in women during pregnancy and in breast milk during lactation. J. Nutr. 138: 2222-2228.
6. 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.
7. Truong, H., et al. 2009. Does genetic variation in the Δ-6-desaturase promoter modify the association between α-linolenic acid and the prevalence of metabolic syndrome? Am. J. Clin. Nutr. 89: 920-925.
8. Tanaka, et al. 2009. Genome-wide association study of plasma polyunsaturated fatty acids in the InCHIANTI Study. PLoS Genet. 5: e1000338.

CHROMOSOMAL LOCATION

Genetic locus: FADS2/FADS1 (human) mapping to 11q12.2; Fads2/Fads1 (mouse) mapping to 19 A.

SOURCE

FADS2 (M-50) is a rabbit polyclonal antibody raised against amino acids 1-50 mapping at the N-terminus of FADS2 of mouse origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

FADS2 (M-50) is recommended for detection of FADS2 and, to a lesser extent, FADS1 of mouse, rat and, to a lesser extent, human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], 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).

FADS2 (M-50) is also recommended for detection of FADS2 and, to a lesser extent, FADS1 in additional species, including equine, bovine and porcine.

Molecular Weight of FADS2: 52 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. López-Vicario, C., et al. 2013. Molecular interplay between Δ5/Δ6 desaturases and long-chain fatty acids in the pathogenesis of non-alcoholic steatohepatitis. Gut. E-published.

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.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.