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FADS2 Antibody (N-term)

Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP12296A

Product Information

Application	WB, IHC-P, IF, FC, E
Primary Accession	O95864
Other Accession	Q4R749, NP_004256.1
Reactivity	Human
Predicted	Rabbit, Monkey, Bovine, Canine
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB31063
Calculated MW	52259
Antigen Region	79-108

Additional Information

Gene ID	9415
Other Names	Fatty acid desaturase 2, 11419-, Delta(6) fatty acid desaturase, D6D, Delta(6) desaturase, Delta-6 desaturase, FADS2
Target/Specificity	This FADS2 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 79-108 amino acids from the N-terminal region of human FADS2.
Dilution	WB~~1:1000 IHC-P~~1:100~500 IF~~1:10~50 FC~~1:10~50 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein A column, followed by peptide affinity purification.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	FADS2 Antibody (N-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	FADS2 (HGNC:3575)
Function	Involved in the biosynthesis of highly unsaturated fatty acids (HUFA) from

	the essential polyunsaturated fatty acids (PUFA) linoleic acid (LA) (18:2n-6) and alpha-linolenic acid (ALA) (18:3n-3) precursors, acting as a fatty acyl-coenzyme A (CoA) desaturase that introduces a cis double bond at carbon 6 of the fatty acyl chain. Catalyzes the first and rate limiting step in this pathway which is the desaturation of LA (18:2n-6) and ALA (18:3n-3) into gamma-linoleate (GLA) (18:3n-6) and stearidonate (18:4n-3), respectively (PubMed:12713571). Subsequently, in the biosynthetic pathway of HUFA n- 3 series, it desaturates tetracosapentaenoate (24:5n-3) to tetracosahexaenoate (24:6n-3), which is then converted to docosahexaenoate (DHA)(22:6n-3), an important lipid for nervous system function (By similarity). Desaturates hexadecanate (palmitate) to produce 6Z-hexadecenoate (sapienate), a fatty acid unique to humans and major component of human sebum, that has been implicated in the development of acne and may have potent antibacterial activity (PubMed:12713571). It can also desaturate (11E)-octadecenoate (trans- vaccenoate, the predominant trans fatty acid in human milk) at carbon 6 generating (6Z,11E)-octadecadienoate (By similarity). In addition to Delta-6 activity, this enzyme exhibits Delta-8 activity with slight biases toward n-3 fatty acyl-CoA substrates (By similarity).
Cellular Location	Endoplasmic reticulum membrane; Multi-pass membrane protein
Tissue Location	Expressed in a wide array of tissues, highest expression is found in liver followed by brain, lung, heart, and retina. A lower level is found in breast tumor when compared with normal tissues; lowest levels were found in patients with poor prognostic index.

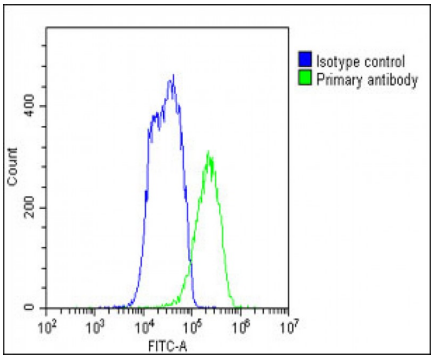
Background

The protein encoded by this gene is a member of the fatty acid desaturase (FADS) gene family. Desaturase enzymes regulate unsaturation of fatty acids through the introduction of double bonds between defined carbons of the fatty acyl chain. FADS family members are considered fusion products composed of an N-terminal cytochrome b5-like domain and a C-terminal multiple membrane-spanning desaturase portion, both of which are characterized by conserved histidine motifs. This gene is clustered with family members FADS1 and FADS2 at 11q12-q13.1; this cluster is thought to have arisen evolutionarily from gene duplication based on its similar exon/intron organization.

References

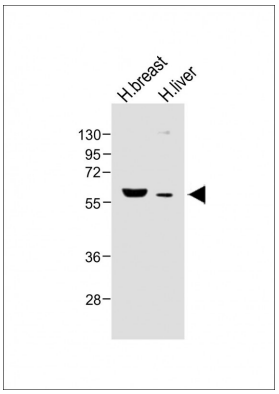
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Mathias, R.A., et al. J. Lipid Res. 51(9):2766-2774(2010)
Lu, Y., et al. Am. J. Clin. Nutr. 92(1):258-265(2010)
Zabaneh, D., et al. PLoS ONE 5 (8), E11961 (2010) :
Steer, C.D., et al. PLoS ONE 5 (7), E11570 (2010) :

Images

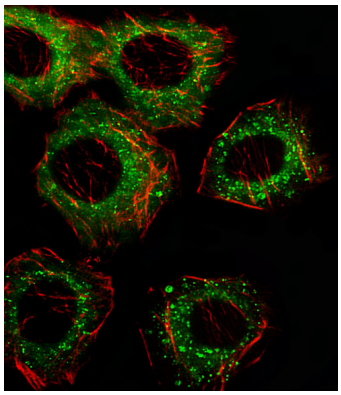


Overlay histogram showing HepG2 cells stained with AP12296a(green line). The cells were fixed with 2% paraformaldehyde 10 min. The cells were then icubated in 2% bovine serum albumin to block non-specific protein-protein interactions followed by the antibody (AP12296a, 1:25 dilution) for 60 min at 37ºC. The secondary antibody used was Goat-Anti-Rabbit IgG, DyLight® 488 Conjugated Highly Cross-Adsorbed(1583138) at 1/200 dilution for 40 min at 37ºC. Isotype control antibody (blue line) was rabbit IgG1

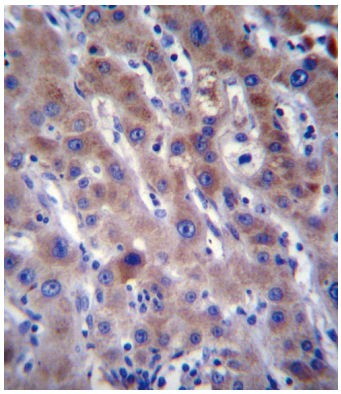
(1µg/1x10^6 cells) used under the same conditions. Acquisition of >10, 000 events was performed.



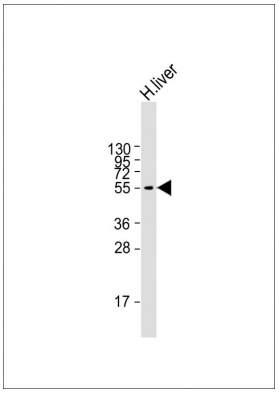
All lanes : Anti-FADS2 Antibody (N-term) at 1:1000 dilution Lane 1: Human breast lysate Lane 2:Human liver lysate Lysates/proteins at 20 µg per lane. Secondary Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/10000 dilution. Predicted band size : 60 kDa Blocking/Dilution buffer: 5% NFDM/TBST.



Fluorescent image of A549 cell stained with FADS2 Antibody (N-term)(Cat#AP12296a/SA110322AN).A549 cells were fixed with 4% PFA (20 min), permeabilized with Triton X-100 (0.1%, 10 min), then incubated with FADS2 primary antibody (1:25, 1 h at 37°C). For secondary antibody, Alexa Fluor® 488 conjugated donkey anti-rabbit antibody (green) was used (1:400, 50 min at 37°C).Cytoplasmic actin was counterstained with Alexa Fluor® 555 (red) conjugated Phalloidin (7units/ml, 1 h at 37°C).FADS2 immunoreactivity is localized to Cytoplasm and Vesicles significantly.



FADS2 Antibody (N-term) (Cat. #AP12296a)immunohistochemistry analysis in formalin fixed and paraffin embedded human liver tissue followed by peroxidase conjugation of the secondary antibody and DAB staining.This data demonstrates the use of FADS2 Antibody (N-term) for immunohistochemistry. Clinical relevance has not been evaluated.



Anti-FADS2 Antibody (N-term) at 1:1000 dilution + Human liver lysate Lysates/proteins at 20 µg per lane. Secondary Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/10000 dilution. Predicted band size : 60 kDa Blocking/Dilution buffer: 5% NFDM/TBST.

Citations

- Synthesis of docosahexaenoic acid from eicosapentaenoic acid in retina neurons protects photoreceptors from oxidative stress.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.