SANTA CRUZ BIOTECHNOLOGY, INC.

ACSL3 (N-17): sc-47994

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Acyl-CoA synthetases, also known as long-chain fatty-acid CoA synthases (FACL) or palmitoyl-CoA ligases, include ACSL1-6, which are all single-pass membrane proteins localizing to the mitochondrion, microsome or peroxisome. ACSL proteins are important for synthesis of cellular lipids and for β-oxidation degradation. Specifically, ACSL proteins catalyze the activation of long-chain fatty acids to acyl-CoAs, which can be metabolized to form CO_2, triacylglycerol (TAG), phospholipids (PL) and cholesteryl esters (CE). ACSL3 preferentially utilizes laurate, myristate, arachidonate and eicosapentaenoate among saturated and unsaturated long chain fatty acids. ACSL3 is expressed as two isoforms in various tissues, including brain, heart, placenta, prostate, skeletal muscle, testis and thymus. ACSL4 preferentially utilizes arachidonate and is abundant in steroidogenic tissues. ACSL4 may modulate female fertility and uterine prostaglandin production.

REFERENCES

1. Fujino, T., Kang, M.J., Suzuki, H., Iijima, H. and Yamamoto, T. 1996. Molecular characterization and expression of rat acyl-CoA synthetase 3. J. Biol. Chem. 271: 16748-16752.
2. Fujino, T., Man-Jong, K., Minekura, H., Suzuki, H. and Yamamoto, T.T. 1997. Alternative translation initiation generates acyl-CoA synthetase 3 isoforms with heterogeneous amino termini. J. Biochem. 122: 212-216.
3. Cho, Y.Y., Kang, M.J., Ogawa, S., Yamashita, Y., Fujino, T. and Yamamoto, T.T. 2000. Regulation by adrenocorticotropic hormone and arachidonate of the expression of acyl-CoA synthetase 4, an arachidonate-preferring enzyme expressed in steroidogenic tissues. Biochem. Biophys. Res. Commun. 274: 741-745.
4. Minekura, H., Kang, M.J., Inagaki, Y., Suzuki, H., Sato, H., Fujino, T. and Yamamoto, T.T. 2001. Genomic organization and transcription units of the human acyl-CoA synthetase 3 gene. Gene 278: 185-192.
5. Muoio, D.M., Lewin, T.M., Wiedmer, P. and Coleman, R.A. 2001. Acyl-CoAs are functionally channeled in liver: potential role of acyl-CoA synthetase. Am. J. Physiol. Endocrinol. Metab. 279: E1366-E7133.
6. Cho, Y.Y., Kang, M.J., Sone, H., Suzuki, T., Abe, M., Igarashi, M., Tokunaga, T., Ogawa, S., Takei, Y.A., Miyazawa, T., Sasano, H., Fujino, T. and Yamamoto, T.T. 2001. Abnormal uterus with polycysts, accumulation of uterine prostaglandins, and reduced fertility in mice heterozygous for acyl-CoA synthetase 4 deficiency. Biochem. Biophys. Res. Commun. 284: 993-997.
7. Minekura, H., Kang, M.J., Inagaki, Y., Cho, Y.Y., Suzuki, H., Fujino, T. and Yamamoto, T.T. 2001. Exon/intron organization and transcription units of the human acyl-CoA synthetase 4 gene. Biochem. Biophys. Res. Commun. 286: 80-86.
8. Coleman, R.A., Lewin, T.M., Van Horn, C.G. and Gonzalez-Baró, M.R. 2002. Do long-chain acyl-CoA synthetases regulate fatty acid entry into synthetic versus degradative pathways? J. Nutr. 132: 2123-2126.

CHROMOSOMAL LOCATION

Genetic locus: ACSL3 (human) mapping to 2q36.1; Acsl3 (mouse) mapping to 1 C4.

SOURCE

ACSL3 (N-17) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of ACSL3 of human origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-47994 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

ACSL3 (N-17) is recommended for detection of ACSL3 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).

ACSL3 (N-17) is also recommended for detection of ACSL3 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for ACSL3 siRNA (h): sc-60617, ACSL3 siRNA (m): sc-60618, ACSL3 shRNA Plasmid (h): sc-60617-SH, ACSL3 shRNA Plasmid (m): sc-60618-SH, ACSL3 shRNA (h) Lentiviral Particles: sc-60617-V and ACSL3 shRNA (m) Lentiviral Particles: sc-60618-V.

Molecular Weight of ACSL3: 79/80 kDa.

PositiveControls: TE671 cell lysate: sc-2416.

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™ compatible donkey anti-goat IgG-HRP: sc-2033 (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) 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™ 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.