SANTA CRUZ BIOTECHNOLOGY, INC.

ACSL4 (A-5): sc-271800

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. FACL 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. FACL3 is expressed as two isoforms in various tissues, including brain, heart, placenta, prostate, skeletal muscle, testis and thymus. FACL4 preferentially utilizes arachidonate and is abundant in steroidogenic tissues. FACL4 may modulate female fertility and uterine prostaglandin production.

CHROMOSOMAL LOCATION

Genetic locus: ACSL4 (human) mapping to Xq23; Acsl4 (mouse) mapping to X F2.

SOURCE

ACSL4 (A-5) is a mouse monoclonal antibody raised against amino acids 623-675 mapping near the C-terminus of ACSL4 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

ACSL4 (A-5) is available conjugated to agarose (sc-271800 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-271800 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271800 PE), fluorescein (sc-271800 FITC), Alexa Fluor® 488 (sc-271800 AF488), Alexa Fluor® 546 (sc-271800 AF546), Alexa Fluor® 594 (sc-271800 AF594) or Alexa Fluor® 647 (sc-271800 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-271800 AF680) or Alexa Fluor® 790 (sc-271800 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

ACSL4 (A-5) is recommended for detection of short isoform and long isoform of ACSL4 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

ACSL4 (A-5) is also recommended for detection of short isoform and long isoform of ACSL4 in additional species, including equine.

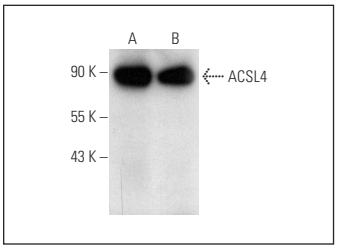
Suitable for use as control antibody for ACSL4 siRNA (h): sc-60619, ACSL4 siRNA (m): sc-60620, ACSL4 shRNA Plasmid (h): sc-60619-SH, ACSL4 shRNA Plasmid (m): sc-60620-SH, ACSL4 shRNA (h) Lentiviral Particles: sc-60619-V and ACSL4 shRNA (m) Lentiviral Particles: sc-60620-V.

Molecular Weight of ACSL4: 75 kDa.

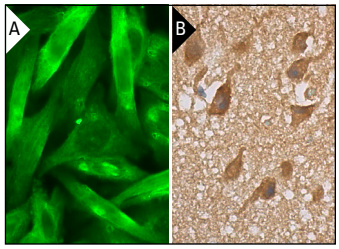
STORAGE

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

DATA



ACSL4 (A-5): sc-271800. Western blot analysis of ACSL4 expression in Hep G2 (**A**) and HeLa (**B**) whole cell lysates.



ACSL4 (A-5) Alexa Fluor® 488: sc-271800 AF488. Direct immunofluorescence staining of formalin-fixed SW480 cells showing mitochondrial and cytoplasmic localization. Blocked with UltraCruz® Blocking Reagent: sc-516214 (**A**). ACSL4 (A-5): sc-271800. Immunoperoxidase staining of formalin fixed, paraffin-embedded human cerebral cortex tissue showing cytoplasmic staining of neuronal cells, glial cells and endothelial cells and neuropil staining (**B**).

SELECT PRODUCT CITATIONS

1. Doll, S., et al. 2017. ACSL4 dictates ferroptosis sensitivity by shaping cellular lipid composition. Nat. Chem. Biol. 13: 91-98.
2. Ingold, I., et al. 2018. Selenium utilization by GPX4 is required to prevent hydroperoxide-induced ferroptosis. Cell 172: 409-422.e21.
3. Park, T.J., et al. 2019. Quantitative proteomic analyses reveal that GPX4 downregulation during myocardial infarction contributes to ferroptosis in cardiomyocytes. Cell Death Dis. 10: 835.
4. Weigand, I., et al. 2020. Active steroid hormone synthesis renders adrenocortical cells highly susceptible to type II ferroptosis induction. Cell Death Dis. 11: 192.
5. Dinarvand, N., et al. 2020. Evaluation of long-chain acyl-coenzyme A synthetase 4 (ACSL4) expression in human breast cancer. Res. Pharm. Sci. 15: 48-56.
6. Adjemian, S., et al. 2020. Ionizing radiation results in a mixture of cellular outcomes including mitotic catastrophe, senescence, methuosis, and iron-dependent cell death. Cell Death Dis. 11: 1003.
7. Takahashi, N., et al. 2020. 3D culture models with CRISPR screens reveal hyperactive Nrf2 as a prerequisite for spheroid formation via regulation of proliferation and ferroptosis. Mol. Cell 80: 828-844.e6.
8. Wang, Z., et al. 2021. A nuclear long non-coding RNA LINC00618 accelerates ferroptosis in a manner dependent upon apoptosis. Mol. Ther. 29: 263-274.

RESEARCH USE

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