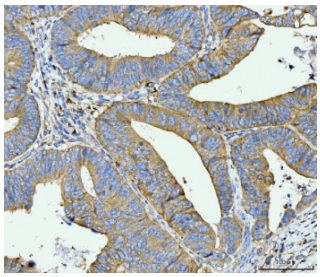
ACSL4 Antibody / Long Chain Fatty Acid Activation Enzyme Antibody [clone 4I7] (RQ6748)

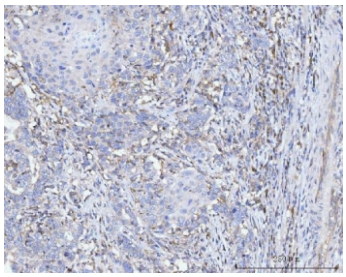
Catalog No.	Formulation	Size
RQ6748	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

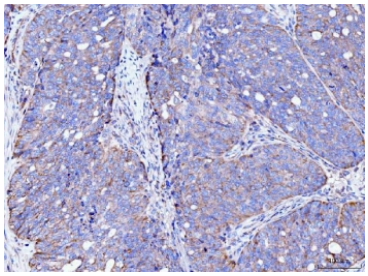
Availability	1-3 business days
Species Reactivity	Human
Format	Purified
Host	Mouse
Clonality	Monoclonal (mouse origin)
Isotype	Mouse IgG1
Clone Name	4I7
Purity	Affinity purified
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	O60488
Localization	Cytoplasmic
Applications	Western blot: 1-2ug/ml Immunohistochemistry (FFPE): 2-5ug/ml Immunofluorescence (FFPE): 5ug/ml Flow cytometry: 1-3ug/million cells
Limitations	This ACSL4 Antibody / Long Chain Fatty Acid Activation Enzyme Antibody is available for research use only.



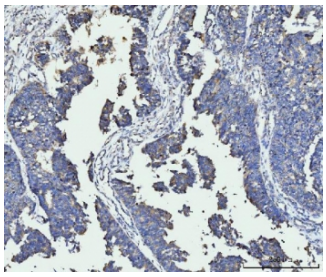
ACSL4 Antibody Human Rectal Adenocarcinoma IHC. Immunohistochemical staining of FFPE moderately differentiated human rectal adenocarcinoma tissue using ACSL4 Antibody / Long Chain Fatty Acid Activation Enzyme Antibody following heat-induced epitope retrieval in pH8 EDTA buffer. The tissue was stained with an HRP-conjugated secondary antibody and DAB chromogen. Strong cytoplasmic staining is observed throughout the neoplastic glandular epithelium, while the surrounding stromal tissue exhibits comparatively weak immunoreactivity. The staining pattern is consistent with the metabolic role of ACSL4 in lipid processing and membrane remodeling within epithelial tumor cells. This ACSL4 Antibody is well suited for investigating long chain fatty acid activation, lipid metabolism, ferroptosis, and colorectal cancer biology in human tissue sections.



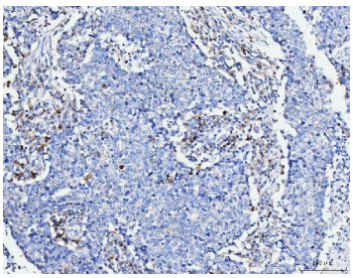
ACSL4 Antibody Human Renal Pelvis Squamous Metaplasia IHC. Immunohistochemical staining of FFPE human renal pelvis tissue with squamous metaplasia using ACSL4 Antibody / Long Chain Fatty Acid Activation Enzyme Antibody following heat-induced epitope retrieval in pH8 EDTA buffer. The tissue was stained with an HRP-conjugated secondary antibody and DAB chromogen. Moderate cytoplasmic staining is observed within the metaplastic squamous epithelium, with additional immunoreactivity present in adjacent epithelial cells, consistent with the expression of ACSL4 in metabolically active tissues. This ACSL4 Antibody is suitable for investigating long chain fatty acid activation, lipid metabolism, ferroptosis, and epithelial remodeling in human tissue sections.



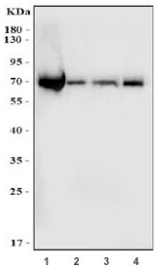
ACSL4 Antibody Human Ovarian Cancer IHC. Immunohistochemical staining of FFPE human ovarian cancer tissue using ACSL4 Antibody / Long Chain Fatty Acid Activation Enzyme Antibody following heat-induced epitope retrieval in pH8 EDTA buffer. The tissue was stained with an HRP-conjugated secondary antibody and DAB chromogen. Diffuse moderate to strong cytoplasmic staining is observed throughout the neoplastic cells, while the surrounding stromal tissue exhibits comparatively weaker immunoreactivity. This expression pattern is consistent with the established role of ACSL4 in lipid metabolism and membrane phospholipid remodeling in tumor cells. This ACSL4 Antibody is well suited for investigating long chain fatty acid activation, ferroptosis, and metabolic reprogramming in ovarian cancer research.



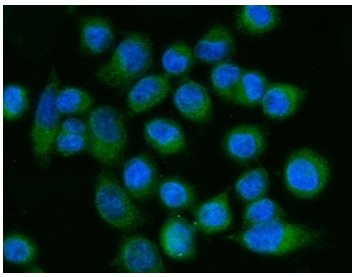
ACSL4 Antibody Human Bladder Carcinoma IHC. Immunohistochemical staining of FFPE human bladder epithelial carcinoma tissue using ACSL4 Antibody / Long Chain Fatty Acid Activation Enzyme Antibody following heat-induced epitope retrieval in pH8 EDTA buffer. The tissue was stained with an HRP-conjugated secondary antibody and DAB chromogen. Moderate to strong cytoplasmic staining is observed throughout the neoplastic urothelial cells, while the surrounding stromal tissue shows comparatively weaker immunoreactivity. This staining pattern is consistent with the role of ACSL4 in lipid metabolism, membrane remodeling, and the altered metabolic state of malignant epithelial cells. This ACSL4 Antibody is well suited for investigating long chain fatty acid activation, ferroptosis, and metabolic reprogramming in bladder cancer research.



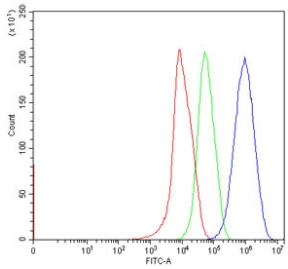
ACSL4 Antibody Human Lung Cancer IHC. Immunohistochemical staining of FFPE human lung cancer tissue using ACSL4 Antibody / Long Chain Fatty Acid Activation Enzyme Antibody following heat-induced epitope retrieval in pH8 EDTA buffer. The tissue was stained with an HRP-conjugated secondary antibody and DAB chromogen. Moderate cytoplasmic staining is observed in scattered neoplastic cells, while adjacent stromal components exhibit comparatively weak immunoreactivity. This staining pattern is consistent with the heterogeneous expression of ACSL4 reported in lung tumors and reflects its role in lipid metabolism and membrane phospholipid remodeling. This ACSL4 Antibody is suitable for investigating long chain fatty acid activation, ferroptosis, and metabolic reprogramming in lung cancer research.



ACSL4 Antibody Human Cancer Cell WB. Western blot analysis of human HepG2 (lane 1), PC-3 (lane 2), HeLa (lane 3), and Caco-2 (lane 4) cell lysates using ACSL4 Antibody / Long Chain Fatty Acid Activation Enzyme Antibody. A predominant band is detected at approximately 74-80 kDa in all four cell lines, corresponding to the expected molecular weights of the short and long ACSL4 isoforms. The consistent detection across multiple human cancer-derived cell lines supports reliable recognition of endogenous ACSL4. This ACSL4 Antibody is well suited for Western blot analysis of long chain fatty acid activation, lipid metabolism, ferroptosis, and cellular metabolic regulation.



ACSL4 Antibody Human Cervical Cancer Cell IF. Immunofluorescent staining of FFPE human SiHa cells using ACSL4 Antibody / Long Chain Fatty Acid Activation Enzyme Antibody following heat-induced epitope retrieval in pH6 citrate buffer. ACSL4 was detected with a green fluorescent secondary antibody, while nuclei were counterstained with DAPI (blue). The staining demonstrates predominantly cytoplasmic localization with a diffuse distribution throughout the cell body, consistent with the association of ACSL4 with intracellular membrane systems involved in lipid metabolism. This ACSL4 Antibody is well suited for immunofluorescent analysis of long chain fatty acid activation, ferroptosis, and lipid metabolic pathways in human cells.



ACSL4 Antibody Human Liver Cancer Cell FACS. Flow cytometric analysis of human HepG2 cells stained with ACSL4 Antibody / Long Chain Fatty Acid Activation Enzyme Antibody at 1 ug/10^6 cells following blocking with goat sera. Red represents unstained cells, green the isotype control, and blue the ACSL4 antibody. The clear rightward shift of the ACSL4 antibody population relative to both controls demonstrates specific detection of ACSL4 expression in HepG2 cells. This ACSL4 Antibody is well suited for flow cytometric analysis of long chain fatty acid activation, ferroptosis, lipid metabolism, and metabolic regulation in human cells.

Description

ACSL4 Antibody / Long Chain Fatty Acid Activation Enzyme Antibody recognizes acyl-CoA synthetase long chain family member 4 (ACSL4), an enzyme that catalyzes the conversion of long-chain fatty acids into their corresponding acyl-CoA derivatives. This activation step is essential for fatty acid utilization in numerous metabolic pathways, including phospholipid synthesis, beta oxidation, membrane remodeling, and lipid signaling. ACSL4 displays substrate preference for polyunsaturated fatty acids such as arachidonic acid and adrenic acid, making it an important regulator of membrane lipid composition and cellular lipid homeostasis. The protein is expressed in a variety of tissues, including brain, adrenal gland, liver, testis, and gastrointestinal tissues, where it contributes to diverse physiological functions. An ACSL4 Antibody / Long Chain Fatty Acid Activation Enzyme Antibody enables researchers to investigate lipid metabolism, membrane biology, and fatty acid activation across normal physiology and disease.

Beyond its classical metabolic role, ACSL4 has emerged as a key regulator of ferroptosis, a form of regulated cell death driven by iron-dependent lipid peroxidation. By generating polyunsaturated fatty acyl-CoA substrates that become incorporated into membrane phospholipids, ACSL4 promotes the formation of lipids that are susceptible to oxidative damage during ferroptosis. Consequently, ACSL4 expression has become widely used as a biomarker of ferroptosis sensitivity and an important determinant of cellular responses to oxidative stress. Current research also links ACSL4 to inflammatory signaling, membrane remodeling, neuronal function, steroidogenesis, and cancer biology. An ACSL4 Antibody / Long Chain Fatty Acid Activation Enzyme Antibody is therefore valuable for studying the molecular mechanisms that connect lipid metabolism with regulated cell death and cellular signaling.

Aberrant ACSL4 expression has been associated with numerous diseases, including hepatocellular carcinoma, colorectal cancer, breast cancer, prostate cancer, ovarian cancer, glioma, neurodegenerative disorders, metabolic disease, and inflammatory conditions. Increasing evidence suggests that modulation of ACSL4 activity influences tumor progression, therapeutic sensitivity, ferroptosis induction, and resistance to oxidative injury. As ferroptosis-based therapeutic strategies

continue to expand, ACSL4 has become an important target for studies examining lipid metabolism, oxidative stress, and targeted cancer therapies. Accurate detection of ACSL4 expression supports investigations into disease mechanisms, biomarker discovery, therapeutic response, and cellular metabolic adaptation. ACSL4 Antibody / Long Chain Fatty Acid Activation Enzyme Antibody provides researchers with an effective tool for characterizing these complex biological processes.

ACSL4 Antibody / Long Chain Fatty Acid Activation Enzyme Antibody is suitable for applications including immunohistochemistry, immunofluorescence, Western blotting, immunoprecipitation, flow cytometry, and other protein detection methods, depending on individual antibody validation. NSJ Bioreagents provides carefully validated antibodies to support investigations of lipid metabolism, ferroptosis, oxidative stress, membrane biology, and cancer research. An ACSL4 Antibody / Long Chain Fatty Acid Activation Enzyme Antibody is a valuable research reagent for detecting ACSL4 and advancing studies of long-chain fatty acid activation, phospholipid remodeling, ferroptosis, and metabolic regulation.

Explore our Metabolism Antibodies page to discover validated antibodies for ACSL4 and other proteins involved in fatty acid activation, lipid metabolism, ferroptosis, phospholipid remodeling, and cellular energy homeostasis.

Application Notes

Optimal dilution of the ACSL4 Antibody / Long Chain Fatty Acid Activation Enzyme Antibody should be determined by the researcher.

Immunogen

Amino acids EPWTPETGLVTDAFKLKRKELR from the human protein were used as the immunogen for the ACSL4 antibody.

Storage

After reconstitution, the ACSL4 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

Alternate Names

ACSL4 antibody, acyl-CoA synthetase long chain family member 4 antibody, long chain fatty acid activation enzyme antibody, FACL4 antibody, long chain acyl-CoA synthetase 4 antibody, ACS4 antibody

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