abcam

ab205199

Anti-FACL4 antibody [EPR17587-42]

Recombinant | RabMAb | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.01% Sodium azide Constituents: PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EPR17587-42
Purification technique	Affinity purification Protein A
Concentration	0.264 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Mouse
Dilution info	1/40
Notes	-

Expected

Species	Human
Dilution info	Use at an assay dependent concentration.
Notes	-

WB

Tested

Species	Human
Dilution info	1/1000
Notes	-

Expected

Species	Mouse
Dilution info	Use at an assay dependent concentration.
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/50
Notes	-

Expected

Species	Mouse
Dilution info	Use at an assay dependent concentration.
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/120
Notes	-

Expected

Species	Mouse
Dilution info	Use at an assay dependent concentration.
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/500
Notes	-

Expected

Species	Mouse
Dilution info	Use at an assay dependent concentration.
Notes	-

Target data

See full target information ACSL4

Function

Catalyzes the conversion of long-chain fatty acids to their active form acyl-CoA for both synthesis of cellular lipids, and degradation via beta-oxidation (PubMed:21242590, PubMed:22633490, PubMed:24269233, PubMed:31061331, PubMed:38720107). Preferentially activates arachidonate and eicosapentaenoate as substrates (PubMed:21242590). Preferentially activates 8,9-EET > 14,15-EET > 5,6-EET > 11,12-EET (PubMed:21242590). Modulates glucose-stimulated insulin secretion by regulating the levels of unesterified EETs (By similarity). Modulates prostaglandin E2 secretion (PubMed:21242590). Acts as an activator of ferroptosis by activating polyunsaturated fatty acids, especially arachidonate and adrenate, to their active form, generating the primary lipid-peroxidation substrates that contribute to ferroptosis (PubMed:27842070, PubMed:35027735, PubMed:38720107).

Storage

Shipped at conditions	Conditional Ambient
Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Notes

Patented technology
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

What are the advantages of a recombinant monoclonal antibody?
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	FACL4 also known as ACSL4 is a member of the long-chain acyl-CoA synthetase (ACSL) family. This enzyme catalyzes the activation of long-chain fatty acids by forming a thioester bond with coenzyme A. FACL4 plays a critical role in lipid metabolism. The molecular weight of FACL4 is approximately 80 kDa. This protein is expressed in various tissues with a higher presence in the brain and testis reflecting its important function in lipid-related processes in these areas.
Biological function summary	FACL4 contributes significantly to lipid metabolism and is involved in the synthesis of complex lipids. It facilitates the integration of long-chain fatty acids into phospholipids and triglycerides. FACL4 often functions as part of larger lipid synthesis and modification complexes working closely with other enzymes to

	maintain membrane integrity and signal transduction. Its activity influences cellular responses to changes in lipid availability and metabolic demands.
Pathways	FACL4 functions within the arachidonic acid metabolism and glycerophospholipid metabolic pathways. In these pathways other proteins such as COX and LOX interact with FACL4 to regulate inflammatory responses and membrane lipid composition. The enzyme's role in these pathways highlights its contribution to managing the balance between pro-inflammatory and anti-inflammatory metabolites which are essential for cell signaling and homeostasis.
Associated diseases and disorders	FACL4 is implicated in several neuropsychiatric conditions including X-linked adrenoleukodystrophy and breast cancer. In the context of these diseases FACL4 interacts with proteins like ALDP in adrenoleukodystrophy. Disrupted FACL4 activity can lead to abnormal lipid accumulation or impaired lipid signaling underlying the pathophysiology of these conditions. Understanding the role of FACL4 in these disorders highlights its potential as a therapeutic target for correcting lipid metabolism dysfunction.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

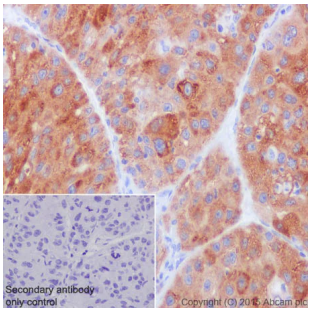
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

10 product images

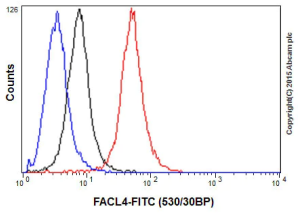


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-FACL4 antibody [EPR17587-42] (ab205199)

FACL4 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-FACL4 antibody

Immunohistochemical analysis of paraffin-embedded Human liver carcinoma tissue labeling FACL4 with ab205199 at 1/500 dilution followed by Goat Anti-Rabbit IgG H&L (HRP) (ab97051) secondary antibody at 1/500 dilution. Cytoplasmic staining on Human hepatocellular carcinoma tissue is observed. Counter stained with Hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/500 dilution.

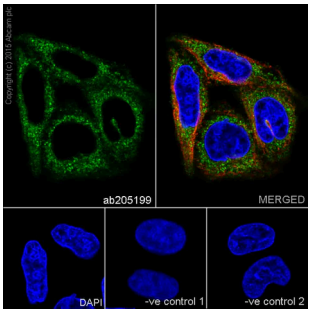
Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Flow Cytometry (Intracellular) - Anti-FACL4 antibody [EPR17587-42] (ab205199)

FACL4 Flow Cytometry (Intracellular) staining using rabbit Anti-FACL4 antibody

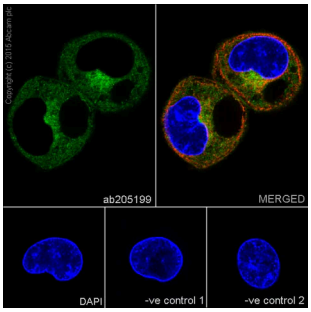
Intracellular flow cytometric analysis of 4% paraformaldehyde-fixed HeLa (Human epithelial cells from cervix adenocarcinoma) cells labeling FACL4 with ab205199 at 1/120 dilution (red) compared with a rabbit monoclonal IgG isotype control (ab172730; black) and an unlabelled control (cells without incubation with primary antibody and secondary antibody; blue). Goat anti rabbit IgG (FITC) at 1/500 dilution was used as the secondary antibody.



Immunocytochemistry/ Immunofluorescence - Anti-FACL4 antibody [EPR17587-42] (ab205199)

FACL4 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-FACL4 antibody

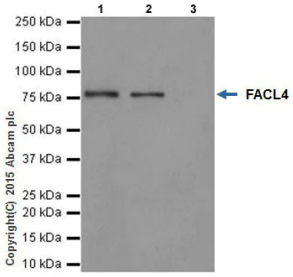
Immunofluorescent analysis of 4% paraformaldehyde-fixed 0.1% Triton X-100 permeabilized HeLa (Human epithelial cells from cervix adenocarcinoma) cells labeling FACL4 with ab205199 at 1/50 dilution followed by Goat anti-rabbit IgG (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing cytoplasmic staining on HeLa cell line. The nuclear counter stain is DAPI (blue). Tubulin is detected with ab7291 (anti-Tubulin mouse mAb) at 1/1000 dilution and ab150120 (AlexaFluor®594 Goat anti-Mouse secondary) at 1/1000 dilution (red).
The negative controls are as follows;
-ve control 1: ab205199 at 1/50 dilution followed by ab150120 (AlexaFluor®594 Goat anti-Mouse secondary) at 1/1000 dilution.
-ve control 2: ab7291 (anti-Tubulin mouse mAb) at 1/1000 dilution followed by ab150077 (Alexa Fluor®488 Goat Anti-Rabbit IgG H&L) at 1/1000 dilution.



Immunocytochemistry/ Immunofluorescence - Anti-FACL4 antibody [EPR17587-42] (ab205199)

FACL4 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-FACL4 antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed 0.1% Triton X-100 permeabilized HepG2 (Human liver hepatocellular carcinoma) cells labeling FACL4 with ab205199 at 1/50 dilution followed by Goat anti-rabbit IgG (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing cytoplasmic staining on HepG2 cell line. The nuclear counter stain is DAPI (blue). Tubulin is detected with ab7291 (anti-Tubulin mouse mAb) at 1/1000 dilution and ab150120 (AlexaFluor®594 Goat anti-Mouse secondary) at 1/1000 dilution (red).
The negative controls are as follows;
-ve control 1: ab205199 at 1/50 dilution followed by ab150120 (AlexaFluor®594 Goat anti-Mouse secondary) at 1/1000 dilution.
-ve control 2: ab7291 (anti-Tubulin mouse mAb) at 1/1000 dilution followed by ab150077 (Alexa Fluor®488 Goat Anti-Rabbit IgG H&L) at 1/1000 dilution.



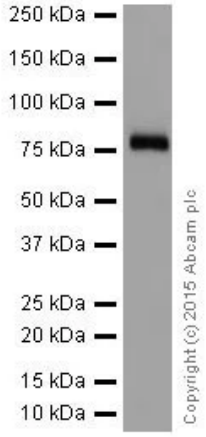
Immunoprecipitation - Anti-FACL4 antibody [EPR17587-42] (ab205199)

FACL4 was immunoprecipitated from 1mg of Mouse brain whole cell lysate with ab205199 at 1/40 dilution. Western blot was performed from the immunoprecipitate using ab205199 at 1/1000 dilution. Anti-Rabbit IgG (HRP), specific to the non-reduced form of IgG, was used as secondary antibody at 1/1500 dilution.
Lane 1: Mouse brain whole cell lysate 10 µg (Input). Lane 2: ab205199 IP in Mouse brain whole cell lysate. Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab205199 in Mouse brain whole cell lysate
Blocking and dilution buffer and concentration: 5% NFDM/TBST.

Exposure time: 8 seconds

All lanes:
Immunoprecipitation - Anti-FACL4 antibody [EPR17587-42] (ab205199)

Predicted band size: 79 kDa



Western blot - Anti-FACL4 antibody [EPR17587-42] (ab205199)

FACL4 Western blot staining of 293 (Human epithelial cells from embryonic kidney) whole cell lysate using rabbit Anti-FACL4 antibody

Blocking/Dilution buffer: 5% NFDM/TBST.
All lanes:
Western blot - Anti-FACL4 antibody [EPR17587-42] (ab205199) at 1/5000 dilution

All lanes:
293 (Human epithelial cells from embryonic kidney) whole cell lysate at 20 µg

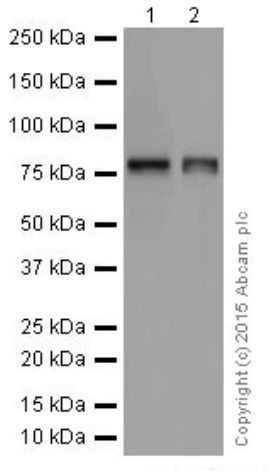
Secondary

All lanes:
Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/1000 dilution

Predicted band size: 79 kDa

Observed band size: 79 kDa

Exposure time: 3min



Western blot - Anti-FACL4 antibody [EPR17587-42] (ab205199)

Blocking/Dilution buffer: 5% NFDM/TBST.
All lanes:
Western blot - Anti-FACL4 antibody [EPR17587-42] (ab205199) at 1/5000 dilution

Lane 1:
HeLa (Human epithelial cells from cervix adenocarcinoma) whole cell lysate at 20 µg

Lane 2:
HepG2 (Human liver hepatocellular carcinoma) whole cell lysate at 20 µg

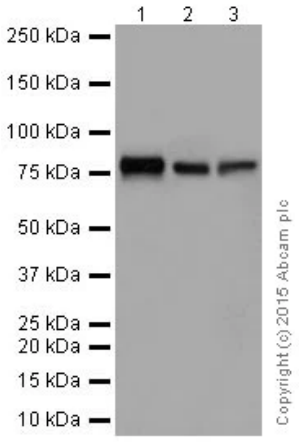
Secondary

All lanes:
Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/1000 dilution

Predicted band size: 44 kDa, 79 kDa

Observed band size: 24 kDa, 44 kDa, 72 kDa, 79 kDa

Exposure time: 30s



Western blot - Anti-FACL4 antibody [EPR17587-42] (ab205199)

Blocking/Dilution buffer: 5% NFDM/TBST.
All lanes:
Western blot - Anti-FACL4 antibody [EPR17587-42] (ab205199) at 1/1000 dilution

Lane 1:
Human fetal brain lysate at 10 µg

Lane 2:
Human fetal heart lysate at 10 µg

Lane 3:
Human fetal kidney lysate at 10 µg

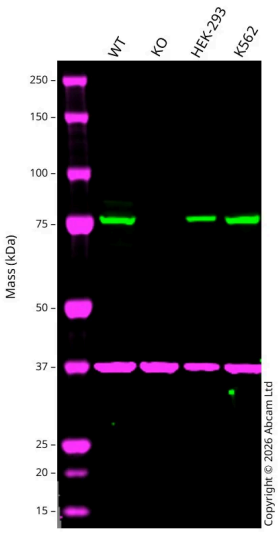
Secondary

All lanes:
Anti-Rabbit IgG (HRP), specific to the non-reduced form of IgG at 1/1000 dilution

Predicted band size: 79 kDa

Observed band size: 79 kDa

Exposure time: 1min



Western blot - Anti-FACL4 antibody [EPR17587-42] (ab205199)

FACL4 Western blot staining using rabbit Anti-FACL4 antibody

Western blot: Anti-FACL4 antibody [EPR17587-42] ab205199 staining at 1/1000 dilution, shown in green; Mouse anti GAPDH ab8245 loading control staining at 1/20000 dilution, shown in magenta. A band was observed at 76 kDa in Wild-type A431 cell line with no signal observed at this size in ACSL4 knockout A431 cell line. To generate this image, samples were run on an SDS-PAGE gel then transferred onto a nitrocellulose membrane. Membranes were blocked in 5% Milk in TBS-0.1 % Tween® 20 (TBS-T) before incubation with primary antibodies overnight at 4 °C. Blots were washed four times in TBS-T, incubated with secondary antibodies for 1 h at room temperature, washed again four times then imaged. Secondary antibodies used were Goat anti-Rabbit 800CW and Goat anti-Mouse 680RD at 1/20,000 dilution.
All lanes:
Western blot - Anti-FACL4 antibody [EPR17587-42] (ab205199) at 1/1000 dilution

Lane 1:
Wild-type A431 cell lysate at 20 µg

Lane 2:
Western blot - Human ACSL4 (FACL4) knockout A-431 cell line (ab269613) at 20 µg

Lane 3:
HEK-293 cell lysate at 20 µg

Lane 4:
K562 cell lysate at 20 µg

Secondary

All lanes:
Goat anti-Rabbit 800CW & Goat anti-Mouse 680RD at 1/20000 dilution

Performed under reducing conditions.

Predicted band size: 79 kDa

Observed band size: 76 kDa

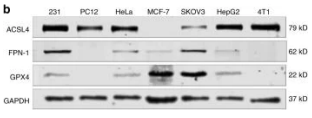


Image collected and cropped by CiteAb under a CC-BY license from the publication

Western blot - Anti-FACL4 antibody [EPR17587-42] (ab205199)

FACL4 western blot using anti-FACL4 antibody [EPR17587-42] ab205199. Publication image and figure legend from Jiang, Y., Zhao, X., et al., 2020, Nat Commun, PubMed 32312987.

ab205199 was used in this publication in western blot. This may not be the same as the application(s) guaranteed by Abcam. For a full list of applications guaranteed by Abcam for ab205199 please see the product overview.

In vitro NIR-II photothermal ferrotherapy.a Confocal laser scanning microscopy (CLSM) images of different types of cancer cells and normal cells after incubation with HSN ([pTBCB] = 50 µg mL−1) or PBS for 24 h. ROS was indicated by green fluorescence from DCF-DA staining. Nuclei were stained with 4′,6-diamidine-2′-phenylindole dihydrochloride (DAPI) and indicated by blue fluorescence. 4T1: murine mammary carcinoma cell line; MCF-7: human breast adenocarcinoma cell line; HepG2: human hepatocellular carcinoma cell line; NIH/3T3: murine fibroblast cell line; NDF: normal human dermal fibroblast cell line. b Western immunoblot analysis of expression levels of ferroptosis-related proteins (ACSL4, FPN-1, GPX4) in a panel of cancer cell lines. MDA-MB-231 (231): human breast adenocarcinoma cell line; PC12: rat pheochromocytoma cell line; HeLa: human cervical adenocarcinoma cell line; SKOV3: human ovarian adenocarcinoma cell line.

Source data were provided in Source Data File. c CLSM images of 4T1 cells after incubation with PBS, HSN, HSN with apoptosis inhibitor DEVD (100 μM), HSN with ferroptosis inhibitor deferoxamine (DFO) (100 μM) for 24 h, respectively. [pTBCB] = 50 μg mL−1. Expression of Cas-3 was indicated by immunofluorescence staining (green fluorescence), and lipid peroxidation was stained with a red-fluorescent probe BODIPY 665/676. Cell viabilities (d) and relative GSH levels (e) of 4T1 cells after incubation with HSN0 or HSN at various concentrations for 24 h with or without 1064 nm photoirradiation (1 W cm−2, 6 min). [pTBCB] = 50 μg mL−1. f Western immunoblots analysis of expression levels of ferroptosis and apoptosis related proteins in 4T1 cells in d and e. Plus and minus symbol indicated with and without photoirradiation, respectively. Source data were provided in Source Data File. g Proposed molecular mechanisms of HSN-mediated NIR-II photothermal ferrotherapy. GSSG glutathione disulfide, AA arachidonic acid, AA-CoA arachidonyl-CoA, LH phospholipid. Error bars indicated standard deviations of three independent measurements.

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