abcam

ab231827

Anti-ACADVL/VLCAD antibody [EPR15107(B)] - BSA and Azide free

Recombinant | RabMAb | KO Validated

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Carrier free	Yes
Clone number	EPR15107(B)
Purification technique	Affinity purification Protein A
Concentration	1.021 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Human
Dilution info	-

Notes	-

WB

Tested

Species	Human
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	ab199376 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

IHC-P

Tested

Species	Human
Dilution info	-
Notes	-

Target data

See full target information ACADVL

Function	Very long-chain specific acyl-CoA dehydrogenase is one of the acyl-CoA dehydrogenases that catalyze the first step of mitochondrial fatty acid beta-oxidation (FAO), breaking down fatty acids into acetyl-CoA and allowing the production of energy from fats (PubMed:17564966, PubMed:18227065, PubMed:7668252, PubMed:9461620, PubMed:9599005, PubMed:9839948). The first step of FAO consists in the proR-proR stereospecific alpha, beta-dehydrogenation of fatty acyl-CoA thioesters using the electron transfer flavoprotein (ETF) as their physiologic electron acceptor, resulting in the formation of trans-2-enoyl-CoA ((2E)-enoyl-CoA) (PubMed:18227065, PubMed:7668252, PubMed:9461620, PubMed:9839948). Among the different mitochondrial acyl-CoA dehydrogenases,

very long-chain specific acyl-CoA dehydrogenase acts specifically on fatty acyl-CoAs with saturated 12 to 24 carbons long primary chains (PubMed:17564966, PubMed:21237683, PubMed:9839948).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Storage information	Do Not Freeze

Notes

ab231827 is the carrier-free version of ab188872.

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.

Conjugation ready

Our carrier-free antibodies are typically supplied in a PBS-only formulation, purified and free of BSA, sodium azide and glycerol. This conjugation-ready format is designed for use with fluorochromes, metal isotopes, oligonucleotides, and enzymes, which makes them ideal for antibody labelling, functional and cell-based assays, flow-based assays (e.g. mass cytometry) and Multiplex Imaging applications.

Use our conjugation kits for antibody conjugates that are ready-to-use in as little as 20 minutes with 1 minute hands-on-time and 100% antibody recovery: available for fluorescent dyes, HRP, biotin and gold.

Compatibility

This product is compatible with the Maxpar® Antibody Labeling Kit from Fluidigm, without the need for antibody preparation. Maxpar® is a trademark of Fluidigm Canada Inc.

Supplementary info

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

Activity summary	ACADVL also known as VLCAD (Very Long-Chain Acyl-CoA Dehydrogenase) is an enzyme that plays an important role in the breakdown of long-chain fatty acids within the mitochondria. It has a molecular mass of approximately 70 kDa. VLCAD is expressed in various tissues with high levels found in the heart skeletal muscle and liver. These tissues are heavily reliant on fatty acid oxidation for energy production especially when glucose availability is low.
Biological function summary	ACADVL functions within the mitochondrial matrix where it catalyzes the initial step of beta-oxidation by desaturating long-chain acyl-CoA molecules. This enzyme is a part of a larger complex that includes other mitochondrial dehydrogenases contributing to the degradation of fatty acids into acetyl-CoA units. The process is essential for energy production especially under fasting conditions or high-energy demand scenarios such as muscle contraction and cardiac function.
Pathways	VLCAD plays an essential role in the fatty acid beta-oxidation pathway. It works alongside other enzymes such as ACADM (Medium-Chain Acyl-CoA Dehydrogenase) to facilitate the sequential shortening of fatty acids which integrates into the Krebs cycle for further energy extraction. This pathway maximizes energy yield from fatty acids significantly influencing cellular metabolism and energy homeostasis.
Associated diseases and disorders	VLCAD deficiencies lead to severe metabolic conditions such as VLCAD deficiency. This disorder results in the impaired breakdown of long-chain fatty acids causing energy deficiency and the accumulation of toxic substances. Symptoms range from muscle weakness to serious cardiac complications. VLCAD deficiency's impact is often assessed in relation to proteins like ACSL1 and CPT2 which are involved in the fatty acid metabolism pathway and are central to effective energy processing in cells.

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

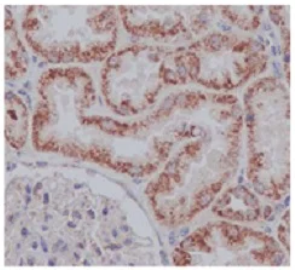
We do not recommend this combination. It is not covered by our product promise.

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.

5 product images

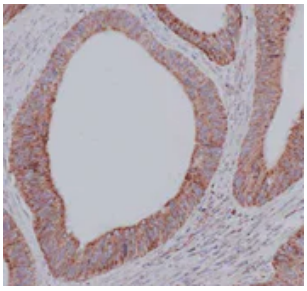


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ACADVL/VLCAD antibody [EPR15107(B)] - BSA and Azide free (ab231827)

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

Immunohistochemical analysis of paraffin-embedded Human kidney tissue labeling ACADVL/VLCAD with ab188872 at 1/500 dilution followed by pre-diluted HRP Polymer for Rabbit IgG secondary antibody and counter-stained with Hematoxylin.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab188872).

Heat mediated antigen retrieval was performed with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

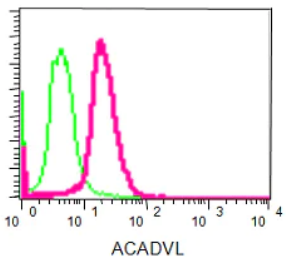


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ACADVL/VLCAD antibody [EPR15107(B)] - BSA and Azide free (ab231827)

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

Immunohistochemical analysis of paraffin-embedded Human colon adenocarcinoma tissue labeling ACADVL/VLCAD with ab188872 at 1/500 dilution followed by pre-diluted HRP Polymer for Rabbit IgG secondary antibody and counter-stained with Hematoxylin.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab188872).

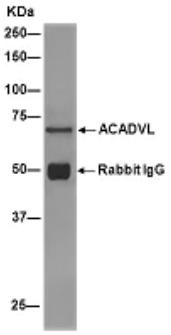
Heat mediated antigen retrieval was performed with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Flow Cytometry (Intracellular) - Anti-ACADVL/VLCAD antibody [EPR15107(B)] - BSA and Azide free (ab231827)

ACADVL/VLCAD Flow Cytometry (Intracellular) staining using rabbit Anti-ACADVL/VLCAD antibody

Intracellular flow cytometric analysis of HeLa cells (paraformaldehyde-fixed, 2%) labeling ACADVL/VLCAD with ab188872 at 1/160 dilution (red) or a rabbit IgG (negative) (green), followed by Goat anti rabbit IgG (FITC) secondary at 1/150 dilution.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab188872).



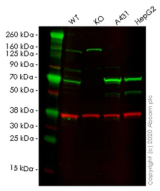
Immunoprecipitation - Anti-ACADVL/VLCAD antibody [EPR15107(B)] - BSA and Azide free (ab231827)

Western blot analysis of immunoprecipitation pellet from A431 lysate immunoprecipitated using ab188872 at 1/50 dilution.
Secondary: Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugate at 1/1000 dilution.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab188872).

All lanes:
Immunoprecipitation - Anti-ACADVL/VLCAD antibody [EPR15107(B)] (ab188872)

Predicted band size: 70 kDa



Western blot - Anti-ACADVL/VLCAD antibody [EPR15107(B)] - BSA and Azide free (ab231827)

ACADVL/VLCAD Western blot staining using rabbit Anti-ACADVL/VLCAD antibody

This data was developed using the same antibody clone in a different buffer formulation (ab188872).
Lanes 1-4: Merged signal (red and green). Green - ab188872 observed at 70 kDa. Red - loading control ab8245 observed at 36 kDa.

ab188872 Anti-ACADVL/VLCAD antibody [EPR15107(B)] was shown to specifically react with ACADVL/VLCAD in wild-type HEK293T cells. Loss of signal was observed when knockout cell line ab266484 (knockout cell lysate ab257332) was used. Wild-type and ACADVL/VLCAD knockout samples were subjected to SDS-PAGE. ab188872 and Anti-GAPDH antibody [6C5] - Loading Control (ab8245) were incubated overnight at 4°C at 1 in 1000 dilution and 1 in 20000 dilution respectively. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preadsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preadsorbed (ab216776) secondary antibodies at 1 in 20000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-ACADVL/VLCAD antibody [EPR15107(B)] (ab188872) at 1/1000 dilution

Lane 1:
Wild-type HEK293T cell lysate at 20 µg

Lane 2:
Western blot - Human ACADVL (VLCAD) knockout HEK-293T cell lysate (ab257332) at 20 µg

Lane 3:
A431 cell lysate at 20 µg

Lane 4:
HepG2 cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat anti-Rabbit IgG H&L (IRDye® 800CW) preadsorbed (ab216773) at 1/10000 dilution

Predicted band size: 70 kDa

Observed band size: 70 kDa

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