abcam

ab249535

Anti-ECHS1 antibody [EPR11784(B)] - BSA and Azide free

Recombinant | RabMAb

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	EPR11784(B)
Purification technique	Affinity purification
Concentration	1.046 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	-

Notes	-

Predicted

Species	Mouse, Rat
Dilution info	-
Notes	-

ICC/IF

Not recommended

Species	Human, Mouse, Rat
Dilution info	-
Notes	-

IP

Not recommended

Species	Human, Mouse, Rat
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	-
Notes	-

Predicted

Species	Mouse, Rat
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	-

Predicted

Species	Mouse, Rat
Dilution info	-
Notes	-

Target data

See full target information Enoyl-CoA hydratase, mitochondrial

Function

Converts unsaturated trans-2-enoyl-CoA species ((2E)-enoyl-CoA) to the corresponding (3S)-3hydroxyacyl-CoA species through addition of a water molecule to the double bond (PubMed:25125611, PubMed:26251176). Catalyzes the hydration of medium- and short-chained fatty enoyl-CoA thioesters from 4 carbons long (C4) up to C16 (PubMed:26251176). Has high substrate specificity for crotonyl-CoA ((2E)-butenoyl-CoA) and moderate specificity for acryloyl-CoA, 3-methylcrotonyl-CoA (3-methyl-(2E)-butenoyl-CoA) and methacrylyl-CoA ((2E)-2-methylpropenoyl-CoA) (PubMed:26251176). Can bind tiglyl-CoA (2-methylcrotonoyl-CoA), but hydrates only a small amount of this substrate (PubMed:26251176). Plays a key role in the beta-oxidation spiral of short- and medium-chain fatty acid oxidation (PubMed:25125611, PubMed:26251176). At a lower rate than the hydratase reaction, catalyzes the isomerase reaction of trans-3-enoyl-CoA species (such as (3E)-hexenoyl-CoA) to trans-2-enoyl-CoA species (such as (2E)-hexenoyl-CoA), which are subsequently hydrated to 3(S)-3-hydroxyacyl-CoA species (such as (3S)-hydroxyhexanoyl-CoA) (By similarity).

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

ab249535 is the carrier-free version of ab170108.

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	ECHS1 Enoyl-CoA Hydratase mitochondrial also known as short-chain enoyl-CoA hydratase 1 is a mitochondrial enzyme involved in fatty acid metabolism. It has a molecular mass of approximately 30 kDa. This protein is expressed predominantly in tissues with high energy demands like heart and skeletal muscle. ECHS1 catalyzes the hydration of enoyl-CoA to 3-hydroxyacyl-CoA playing a significant role in the beta-oxidation pathway of fatty acid breakdown.
Biological function summary	ECHS1 functions as an important enzyme in the mitochondrial fatty acid degradation pathway. It participates as a component of the fatty acid beta-oxidation complex where it collaborates with other enzymes to facilitate energy production through lipids. ECHS1 ensures the conversion of unsaturated fatty acids into metabolites usable in subsequent steps of the energy cycle supporting cellular metabolism.

Pathways	ECHS1 lies within the beta-oxidation pathway of fatty acids important for the energy supply in mitochondria. This pathway directly links to the citric acid cycle (Krebs cycle) where acetyl-CoA produced through beta-oxidation gets further oxidized for energy generation. ECHS1 functions in concert with other enzymes such as Acyl-CoA dehydrogenases that precede its action in the pathway ensuring complete fatty acid degradation.
Associated diseases and disorders	Defects in ECHS1 activity associate with rare metabolic disorders like short-chain enoyl-CoA hydratase deficiency. This deficiency leads to a build-up of toxic metabolites affecting the nervous system and muscle function. Moreover abnormalities in ECHS1 expression can relate to mitochondrial diseases impacting proteins such as Pyruvate dehydrogenase which further disrupts energy metabolism. Understanding ECHS1's role in these processes has important implications for diagnosing and developing treatments for metabolic conditions.

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

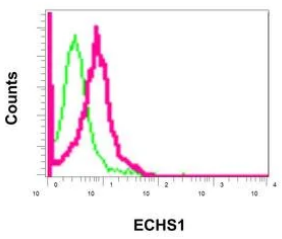
We do not recommend this combination. It is not covered by our product promise.

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.

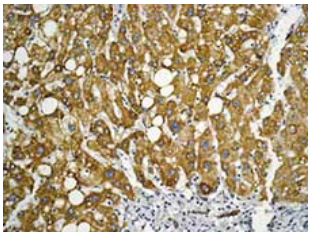
4 product images



Flow Cytometry (Intracellular) - Anti-ECHS1 antibody [EPR11784(B)] - BSA and Azide free (ab249535)

ECHS1 Flow Cytometry (Intracellular) staining using rabbit Anti-ECHS1 antibody

This data was developed using ab170108, the same antibody clone in a different buffer formulation.
Intracellular flow cytometric analysis of permeabilized HeLa cells labeling ECHS1 with ab170108 at 1/100 dilution (red) compared to a rabbit IgG negative control (green).

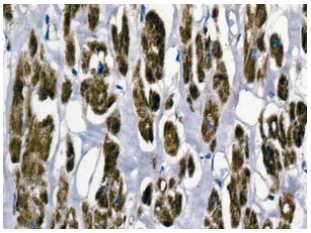


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ECHS1 antibody [EPR11784(B)] - BSA and Azide free (ab249535)

ECHS1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-ECHS1 antibody

This data was developed using ab170108, the same antibody clone in a different buffer formulation.
Immunohistochemical analysis of paraffin-embedded Human liver tissue labeling ECHS1 with ab170108 at 1/100 dilution.

Perform heat mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.

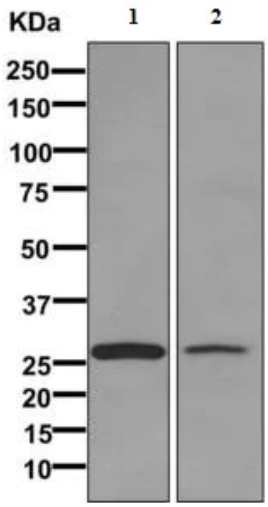


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ECHS1 antibody [EPR11784(B)] - BSA and Azide free (ab249535)

ECHS1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-ECHS1 antibody

This data was developed using ab170108, the same antibody clone in a different buffer formulation.
Immunohistochemical analysis of paraffin-embedded Human cardiac muscle tissue labeling ECHS1 with ab170108 at 1/100 dilution.

Perform heat mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.



Western blot - Anti-ECHS1 antibody [EPR11784(B)] - BSA and Azide free (ab249535)

This data was developed using ab170108, the same antibody clone in a different buffer formulation.
All lanes:
Western blot - Anti-ECHS1 antibody [EPR11784(B)] (ab170108) at 1/1000 dilution

Lane 1:
Fetal liver lysate at 10 µg

Lane 2:
HeLa cell lysate at 10 µg

Secondary

All lanes:
HRP labeled goat anti-rabbit at 1/2000 dilution

Predicted band size: 31 kDa

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