abcam

ab170108

Anti-ECHS1 antibody [EPR11784(B)]

Recombinant | RabMAb

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	EPR11784(B)
Purification technique	Affinity purification Protein A
Concentration	0.624 - 0.631 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	1/100 - 1/250
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	1/1000 - 1/10000
Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/100 - 1/500
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

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	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	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

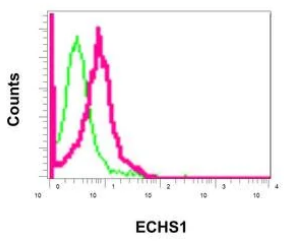
We do not recommend this combination. It is not covered by our product promise.

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.

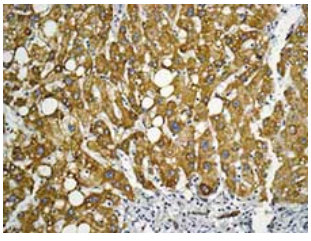
4 product images



Flow Cytometry (Intracellular) - Anti-ECHS1 antibody [EPR11784(B)] (ab170108)

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

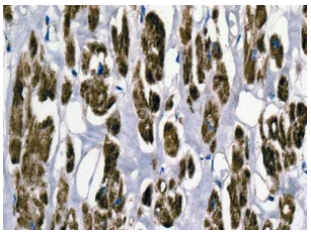
Intracellular flow cytometric analysis of permeabilized HeLa cells labeling ECHS1with ab170108at 1/100 dilution (red) compared toa rabbit IgG negative control (green).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ECHS1 antibody [EPR11784(B)] (ab170108)

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

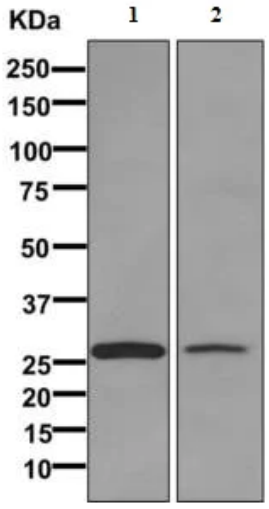
Immunohistochemical analysis of paraffin-embedded Human liver tissue labeling ECHS1 with ab170108 at 1/100 dilution.
Perform heat mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ECHS1 antibody [EPR11784(B)] (ab170108)

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

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)] (ab170108)

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'.