abcam

ab110294

Anti-ECH1 antibody [9D11AF3]

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	pH: 7.5 Preservative: 0.02% Sodium azide Constituents: HEPES buffered saline
Form	Liquid
Clonality	Monoclonal
Clone number	9D11AF3
Purification technique	Precipitation Ammonium Sulphate
Light chain type	kappa
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	Near homogeneity as judged by SDS-PAGE. ab110294 was produced in vitro using hybridomas grown in serum-free medium, and then purified by biochemical fractionation.

Reactivity data

Flow Cyt

Tested

Species	Human
Dilution info	1 µg/mL

Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

ICC/IF

Tested

Species	Human
Dilution info	4 µg/mL
Notes	-

Target data

See full target information Delta(3,5)-Delta(2,4)-dienoyl-CoA isomerase, mitochondrial

Function	Isomerization of 3-trans,5-cis-dienoyl-CoA (3E,5Z-dienoyl-CoA) to 2-trans,4-trans-dienoyl-CoA (2E,4E-dienoyl-CoA), a crucial step in the beta-oxidation of unsaturated fatty acids with double bonds at odd position.

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

ECH1 is a member of the hydratase/isomerase superfamily involved in fatty acid metabolism. It is localized to peroxisomes and/or mitochondria in different mammals. In humans, levels of ECH1 are modulated by peroxisome proliferators. As the name implies, ECH1 catalyzes the isomerization of cis Δ3,5, double bonds in unsaturated acyl-CoAs to yield trans Δ2,4-dienoyl CoAs. These are substrates for Δ2,4-dienoyl CoA reductase which produces trans-3 enoyl CoA. This intermediate can then be further transformed by Δ3, Δ2 - enoyl CoA isomerase to finally yield the trans-2 double bond configured fatty acyl CoA, which can be then directed into the ß-oxidation pathway. Expression of ECH1 is highest in metabolically active tissues such as heart, skeletal muscle, central nervous system, liver and kidney. Recent studies show that it is down regulated in gastric carcinoma and CLL.

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Supplementary info

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

Activity summary	ECH1 also known as Delta(35)-Delta(24)-dienoyl-CoA isomerase is a mitochondrial protein with a mass of approximately 31 kDa. It is expressed in a wide variety of tissues including high levels in the liver heart and muscle. This protein plays an important role in the beta-oxidation of unsaturated fatty acids inside mitochondria by catalyzing the conversion of 35-dienoyl-CoA to 24-dienoyl-CoA. Because of this function ECH1 contributes to the efficient metabolism of fatty acids.
Biological function summary	The ECH1 protein facilitates the breakdown and utilization of unsaturated fatty acids thereby providing energy for cellular processes. It acts independently and is not a part of a large protein complex. Mitochondria rely on ECH1 to handle specific intermediates in fatty acid metabolism which impacts how cells manage their energy resources. This makes ECH1 essential for maintaining energy homeostasis particularly during periods of increased metabolic demand.
Pathways	ECH1 is integral to the mitochondrial fatty acid beta-oxidation pathway. This pathway is important for converting fatty acids into acetyl-CoA units which then enter the Krebs cycle for further energy production. ECH1 interacts with other proteins like ACAA2 which contributes to the final step of fatty acid degradation. Alongside this it aligns with the peroxisomal biogenesis pathway influencing the balance between metabolic processes within mitochondria and peroxisomes.
Associated diseases and disorders	ECH1 activity impacts conditions such as metabolic syndrome and inherited disorders of mitochondrial fatty acid oxidation including Medium-chain acyl-CoA dehydrogenase (MCAD) deficiency. Changes in the function or expression of ECH1 can lead to accumulation of fatty acid intermediates causing cellular dysfunction. In diseases where energy balance is disrupted like metabolic syndrome ECH1's interaction with proteins like HADHA which assists in the final steps of beta-oxidation becomes significant for understanding and potentially targeting treatments.

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

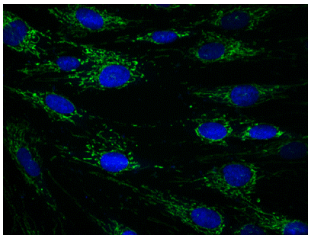
We do not recommend this combination. It is not covered by our product promise.

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:
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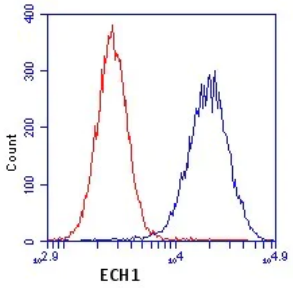
2 product images



Immunocytochemistry/ Immunofluorescence - Anti-ECH1 antibody [9D11AF3] (ab110294)

ECH1 Immunocytochemistry/ Immunofluorescence staining using mouse Anti-ECH1 antibody

Immunocytochemistry image of ab110294 stained human HDFn cells. The cells were paraformaldehyde fixed (4%, 20 min) and Triton X-100 permeabilized (0.1%, 15min). The cells were incubated with the antibody (9D11AF3, 4 µg/ml) for 2h at room temperature or over night at 4°C. The secondary antibody was (green) AlexaFluor® 488 goat anti-mouse IgG (H+L) used at a 1/1000 dilution for 1h. 10% Goat serum was used as the blocking agent for all blocking steps. DAPI was used to stain the cell nuclei (blue). Target protein locates mainly in the mitochondria.



Flow Cytometry - Anti-ECH1 antibody [9D11AF3] (ab110294)

ECH1 Flow Cytometry staining using mouse Anti-ECH1 antibody

HL-60 cells were stained with 1 µg/mL ab110294 (blue) or an equal amount of an isotype control antibody (red) and analyzed by flow cytometry.

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