Product datasheet

Anti-SDHA antibody [2E3GC12FB2AE2] ab14715

Overview

Product name: Anti-SDHA antibody [2E3GC12FB2AE2]
Description: Mouse monoclonal [2E3GC12FB2AE2] to SDHA
Host species: Mouse
Tested applications: Suitable for: ICC, IHC-Fr, Flow Cyt, ICC/IF, WB, IHC-P
Species reactivity: Reacts with: Mouse, Rat, Cow, Dog, Human
Immunogen: Full length native protein (purified) corresponding to Cow SDHA. Purified mitochondrial complex II (Cow).
Positive control: Human heart mitochondria.
General notes: This antibody clone is manufactured by Abcam.
Product was previously marketed under the MitoSciences sub-brand.
If you require this antibody in a particular buffer formulation or a particular conjugate for your experiments, please contact orders@abcam.com or you can find further information here.

Properties

Form: Liquid
Storage instructions: Shipped at 4°C. Store at +4°C.
Storage buffer: Preservative: 0.02% Sodium azide Constituent: HEPES buffered saline
Purity: IgG fraction
Purification notes: Near homogeneity as judged by SDS-PAGE. The antibody was produced in vitro using hybridomas grown in serum-free medium, and then purified by biochemical fractionation.
Clonality: Monoclonal
Clone number: 2E3GC12FB2AE2
Isotype: IgG1
Light chain type: kappa

Applications

Our Abpromise guarantee covers the use of ab14715 in the following tested applications.
Function
Flavoprotein (FP) subunit of succinate dehydrogenase (SDH) that is involved in complex II of the mitochondrial electron transport chain and is responsible for transferring electrons from succinate to ubiquinone (coenzyme Q).

Pathway
Carbohydrate metabolism; tricarboxylic acid cycle; fumarate from succinate (eukaryal route): step 1/1.

Involvement in disease
Defects in SDHA are a cause of mitochondrial complex II deficiency (MT-C2D) [MIM:252011]. A disorder of the mitochondrial respiratory chain with heterogeneous clinical manifestations. Clinical features include psychomotor regression in infants, poor growth with lack of speech development, severe spastic quadriplegia, dystonia, progressive leukoencephalopathy, muscle weakness, exercise intolerance, cardiomyopathy. Some patients manifest Leigh syndrome or Kearns-Sayre syndrome.
Defects in SDHA are a cause of Leigh syndrome (LS) [MIM:256000]. LS is a severe disorder characterized by bilaterally symmetrical necrotic lesions in subcortical brain regions. Defects in SDHA are the cause of cardiomyopathy dilated type 1GG (CMD1GG) [MIM:613642]. CMD1GG is a disorder characterized by ventricular dilation and impaired systolic function, resulting in congestive heart failure and arrhythmia. Patients are at risk of premature death.

Sequence similarities
Belongs to the FAD-dependent oxidoreductase 2 family. FRD/SDH subfamily.

Cellular localization
Mitochondrion inner membrane.

<table>
<thead>
<tr>
<th>Application</th>
<th>Abreviews</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICC</td>
<td></td>
<td>Use a concentration of 0.2 µg/ml. Requires heat-induced antigen retrieval where aldehydes are used as fixatives. Use 20min incubation at 90-100°C in 0.1 M Tris/HCl pH 9.5 with 5% urea (wt/vol).</td>
</tr>
<tr>
<td>IHC-Fr</td>
<td></td>
<td>Use at an assay dependent concentration.</td>
</tr>
<tr>
<td>Flow Cyt</td>
<td>★★★★★ 🌡️</td>
<td>Use a concentration of 1 µg/ml. ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.</td>
</tr>
<tr>
<td>ICC/IF</td>
<td>★★★★★ 1/200.</td>
<td></td>
</tr>
<tr>
<td>WB</td>
<td>★★★★★</td>
<td>Use a concentration of 0.1 µg/ml. Detects a band of approximately 70 kDa (predicted molecular weight: 70 kDa).</td>
</tr>
<tr>
<td>IHC-P</td>
<td>★★★★★</td>
<td>Use at an assay dependent concentration. PubMed: 20484225</td>
</tr>
</tbody>
</table>

Target

Function
Flavoprotein (FP) subunit of succinate dehydrogenase (SDH) that is involved in complex II of the mitochondrial electron transport chain and is responsible for transferring electrons from succinate to ubiquinone (coenzyme Q).

Pathway
Carbohydrate metabolism; tricarboxylic acid cycle; fumarate from succinate (eukaryal route): step 1/1.

Involvement in disease
Defects in SDHA are a cause of mitochondrial complex II deficiency (MT-C2D) [MIM:252011]. A disorder of the mitochondrial respiratory chain with heterogeneous clinical manifestations. Clinical features include psychomotor regression in infants, poor growth with lack of speech development, severe spastic quadriplegia, dystonia, progressive leukoencephalopathy, muscle weakness, exercise intolerance, cardiomyopathy. Some patients manifest Leigh syndrome or Kearns-Sayre syndrome.
Defects in SDHA are a cause of Leigh syndrome (LS) [MIM:256000]. LS is a severe disorder characterized by bilaterally symmetrical necrotic lesions in subcortical brain regions. Defects in SDHA are the cause of cardiomyopathy dilated type 1GG (CMD1GG) [MIM:613642]. CMD1GG is a disorder characterized by ventricular dilation and impaired systolic function, resulting in congestive heart failure and arrhythmia. Patients are at risk of premature death.

Sequence similarities
Belongs to the FAD-dependent oxidoreductase 2 family. FRD/SDH subfamily.

Cellular localization
Mitochondrion inner membrane.

Images
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-SDHA antibody [2E3GC12FB2AE2] (ab14715)

ab14715 (2µg/ml) staining SDHA in human testis using an automated system (DAKO Autostainer Plus). Using this protocol there is cytoplasmic and mitochondrial staining within the seminal vesicles.

Sections were rehydrated and antigen retrieved with the Dako 3 in 1 AR buffer EDTA pH 9.0 in a DAKO PT link. Slides were peroxidase blocked in 3% H2O2 in methanol for 10 mins. They were then blocked with Dako Protein block for 10 minutes (containing casein 0.25% in PBS) then incubated with primary antibody for 20 min and detected with Dako envision flex amplification kit for 30 minutes. Colorimetric detection was completed with Diaminobenzidine for 5 minutes. Slides were counterstained with Haematoxylin and coverslipped under DePeX. Please note that, for manual staining, optimization of primary antibody concentration and incubation time is recommended. Signal amplification may be required.

Western blot - Anti-SDHA antibody [2E3GC12FB2AE2] (ab14715)

All lanes: Anti-SDHA antibody [2E3GC12FB2AE2] (ab14715)

Lane 1: Isolated mitochondria from Human heart at 5 µg
Lane 2: Isolated mitochondria from Bovine heart at 4 µg
Lane 3: Isolated mitochondria from Rat heart at 10 µg
Lane 4: Isolated mitochondria from Mouse heart at 10 µg
Lane 5: Isolated mitochondria from HepG2 at 20 µg

Predicted band size: 70 kDa
Observed band size: 70 kDa
Mitochondrial localization of complex II visualized by immunocytochemistry using ab14715. Cultured human embryonic lung-derived fibroblasts (strain MRC5) were fixed, permeabilized and then labeled with ab14715 (0.2 µg/ml) followed by an AlexaFluor® 488-conjugated-goat-anti-mouse IgG2a isotype specific secondary antibody (2 µg/ml).

Skeletal muscle immunohistochemistry using ab14715. Fixed frozen tissue sections from a patient with a single large deletion of the mtDNA were used. All muscle fibers exhibit complex II immunoreactivity, consistent with the nuclear DNA-encoded expression pattern of this and all other subunits of complex II.
ICC/IF image of ab14715 stained human HeLa cells. The cells were 4% PFA fixed (10 min) and then incubated in 1%BSA / 10% normal goat serum / 0.3M glycine in 0.1% PBS-Tween for 1h to permeabilise the cells and block non-specific protein-protein interactions. The cells were then incubated with the antibody (ab14715, 5µg/ml) overnight at +4°C. The secondary antibody (green) was Alexa Fluor® 488 goat anti-mouse IgG (H+L) used at a 1/1000 dilution for 1h. Alexa Fluor® 594 WGA was used to label plasma membranes (red) at a 1/200 dilution for 1h. DAPI was used to stain the cell nuclei (blue). This antibody also gave a positive IF result in Hek293, HepG2 and MCF7 cells.

HL-60 cells were stained with 1 µg/mL ab14715 (blue) or an equal amount of an isotype control antibody (red) and analyzed by flow cytometry.

Lane 1: Prestained Protein Ladder
Lane 2-3: Fly mitochondrial fraction
Lane 4: Fly cytoplasmic fraction
Lane 5: Robin mitochondrial fraction
Lane 6: Robin cytoplasmic fraction
Lane 7: Mouse (AML12) mitochondrial fraction
Lane 8: Mouse (AML12) cytoplasmic fraction
Lane 9: Prestained Protein Ladder

Mitochondrial and cytoplasmic fractions were obtained from whole flies with Abcam Mitochondrial Isolation Kit for Tissue (ab110168) and from robin fibroblast and mouse hepatocyte cell lines with Abcam Mitochondrial Isolation Kit for Cells (ab110170). ab14715 was used to stain SDHA at 0.1 µg/ml

HRP-conjugated Horse Anti-mouse IgG at 1 µg/ml was used as a secondary antibody.

Please note: All products are "FOR RESEARCH USE ONLY AND ARE NOT INTENDED FOR DIAGNOSTIC OR THERAPEUTIC USE"
Our Abpromise to you: Quality guaranteed and expert technical support

- Replacement or refund for products not performing as stated on the datasheet
- Valid for 12 months from date of delivery
- Response to your inquiry within 24 hours
- We provide support in Chinese, English, French, German, Japanese and Spanish
- Extensive multi-media technical resources to help you
- We investigate all quality concerns to ensure our products perform to the highest standards

If the product does not perform as described on this datasheet, we will offer a refund or replacement. For full details of the Abpromise, please visit https://www.abcam.com/abpromise or contact our technical team.

Terms and conditions

- Guarantee only valid for products bought direct from Abcam or one of our authorized distributors