abcam

ab110249

Anti-NDUFS2 antibody [7A12BE5AD5]

KO Validated

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	7A12BE5AD5
Light chain type	kappa
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	The purity of ab110249 is 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.

Reactivity data

Flow Cyt

Tested

Species	Human
Dilution info	1 µg for 10^6 Cells
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Expected

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

WB

Tested

Species	Mouse
Dilution info	0.25 µg/mL
Notes	-

Species	Rat
Dilution info	0.25 µg/mL
Notes	-

Species	Human
Dilution info	1/5000
Notes	-

Species	Cow
Dilution info	0.25 µg/mL
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	5 µg/mL
Notes	-

Expected

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

Target data

See full target information NADH dehydrogenase [ubiquinone] iron-sulfur protein 2, mitochondrial

Function	Core subunit of the mitochondrial membrane respiratory chain NADH dehydrogenase (Complex I) which catalyzes electron transfer from NADH through the respiratory chain, using ubiquinone as an electron acceptor (PubMed:22036843, PubMed:28031252, PubMed:30922174). Essential for the catalytic activity of complex I (PubMed:22036843, PubMed:30922174). Essential for the assembly of complex I (By similarity). Redox-sensitive, critical component of the oxygen-sensing pathway in the pulmonary vasculature which plays a key role in acute pulmonary oxygen-sensing and hypoxic pulmonary vasoconstriction (PubMed:30922174). Plays an important role in carotid body sensing of hypoxia (By similarity). Essential for glia-like neural stem and progenitor cell proliferation, differentiation and subsequent oligodendrocyte or neuronal maturation (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

Want a custom formulation?
This antibody clone is manufactured by Abcam. If you require a custom buffer formulation or conjugation for your experiments, please contact orders@abcam.com

Supplementary info

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

Activity summary	NDUFS2 also known as NADH dehydrogenase [ubiquinone] iron-sulfur protein 2 is a significant component of complex I in the mitochondrial respiratory chain. This protein has a mass of approximately 54 kDa and is primarily found in mitochondrial membranes of cells across various tissues. It plays an essential role in electron transfer working closely with other subunits to facilitate the conversion of NADH to NAD+ contributing to the process of oxidative phosphorylation.
Biological function summary	NDUFS2 serves an important role in energy production as part of the multi-subunit complex I which is also known as NADH:ubiquinone oxidoreductase. This complex catalyzes the first step in the mitochondrial electron transport chain transferring electrons from NADH to ubiquinone. Through this process NDUFS2 helps power ATP synthesis by contributing to the establishment of a proton gradient across the inner mitochondrial membrane which is fundamental to cellular energy metabolism.
Pathways	The function of NDUFS2 is integral to both the oxidative phosphorylation and citric acid cycle pathways. Within oxidative phosphorylation NDUFS2 associates closely with other complex I subunits such as NDUFS1 and NDUFV1. These associations allow it to effectively participate in the electron transport chain facilitating energy production. The citric acid cycle indirectly impacts NDUFS2's function by supplying NADH which is necessary for complex I activity and efficient energy conversion.
Associated diseases and disorders	NDUFS2 mutations and dysfunctions relate to disorders such as Leigh syndrome and some mitochondrial myopathies. Leigh syndrome a severe neurological disorder often involves deficiencies in complex I where NDUFS2 plays a significant role. This protein also shows connections to other mitochondrial proteins like NDUFA12 and NDUFB6 which when also impaired can contribute to disease manifestations. The study and understanding of NDUFS2's role in these conditions are important for developing potential therapeutic strategies.

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

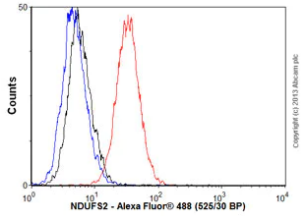
We do not recommend this combination. It is not covered by our product promise.

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.

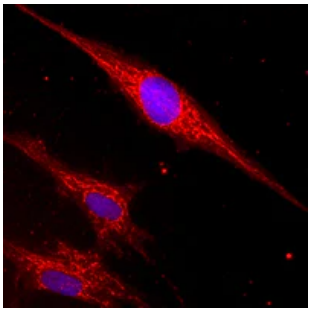
7 product images



Flow Cytometry - Anti-NDUFS2 antibody [7A12BE5AD5] (ab110249)

NDUFS2 Flow Cytometry staining using mouse Anti-NDUFS2 antibody

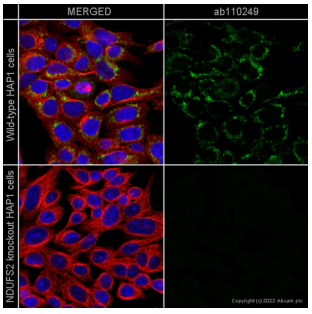
Overlay histogram showing HepG2 cells stained with ab110249 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab110249, 1µg/1x10^6 cells) for 30 min at 22°C. The secondary antibody used was Alexa Fluor® 488 goat anti-mouse IgG (H&L) (ab150113) at 1/2000 dilution for 30 min at 22°C. Isotype control antibody (black line) was mouse IgG1 [ICIGG1] (ab91353, 1µg/1x10^6 cells) used under the same conditions. Unlabelled sample (blue line) was also used as a control. Acquisition of >5,000 events were collected using a 20mW Argon ion laser (488nm) and 525/30 bandpass filter.



Immunocytochemistry/ Immunofluorescence - Anti-NDUFS2 antibody [7A12BE5AD5] (ab110249)

NDUFS2 Immunocytochemistry/ Immunofluorescence staining using mouse Anti-NDUFS2 antibody

Mitochondrial localization of Complex I subunit NDUFS2 visualized by Immunocytochemistry in HDFn cultured cells (normal Human dermal fibroblasts, neonatal), using ab110249 at 5 µg/ml.



Immunocytochemistry/ Immunofluorescence - Anti-NDUFS2 antibody [7A12BE5AD5] (ab110249)

NDUFS2 Immunocytochemistry/ Immunofluorescence staining using mouse Anti-NDUFS2 antibody

ab110249 staining NDUFS2 in wild-type Hap1 cells (top panel) and NDUFS2 knockout Hap1 cells (bottom panel). The cells were fixed with 100% methanol (5 min) then permeabilized with 0.1% Triton X-100 for 5 minutes and then blocked with 1% BSA/10% normal goat serum/0.3M glycine in 0.1% PBS-Tween for 1h. The cells were then incubated with ab110249 at 0.4µg/ml concentration and ab6046 (Rabbit polyclonal to beta Tubulin) at 1/1000 dilution overnight at 4°C followed by a further incubation at room temperature for 1h with a goat secondary antibody to mouse IgG (Alexa Fluor® 488) (ab150117) at 2 µg/ml (shown in green) and a goat secondary antibody to rabbit IgG (Alexa Fluor® 594) (ab150080) at 2 µg/ml (shown in red). Nuclear DNA was labelled in blue with DAPI.
Image was taken with a confocal microscope (Leica-Microsystems TCS SP8).



Western blot - Anti-NDUFS2 antibody [7A12BE5AD5] (ab110249)

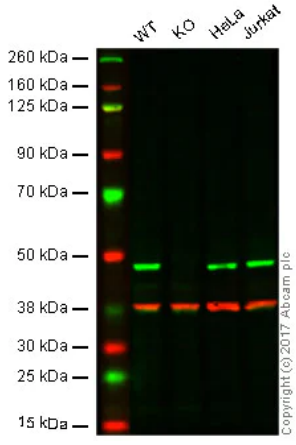
ab110249 was shown to react with NDUFS2 in wild-type HAP1 cells in Western blot with loss of signal observed in a NDUFS2 knockout cell line. Wild-type HAP1 and NDUFS2 knockout cell lysates were subjected to SDS-PAGE. Membranes were blocked in 5% milk in TBST for 1 hr before incubation with ab110249 overnight at 4 °C at a 1/5000 dilution. Blots were incubated with secondary antibodies at 0.2ug/mL before imaging.

This data was provided by YCharOS Inc., an open science company with the mission of characterizing commercially available antibody reagents for all human proteins. Abcam and YCharOS are working together to help address the reproducibility crisis by enabling the life science community to better evaluate commercially available antibodies.
All lanes:
Western blot - Anti-NDUFS2 antibody [7A12BE5AD5] (ab110249) at 1/5000 dilution

Lane 1:
Wild-type HAP1 lysate at 20 µg

Lane 2:
NDUFS2 knock-out HAP1 lysate at 20 µg

Predicted band size: 53 kDa



Western blot - Anti-NDUFS2 antibody [7A12BE5AD5] (ab110249)

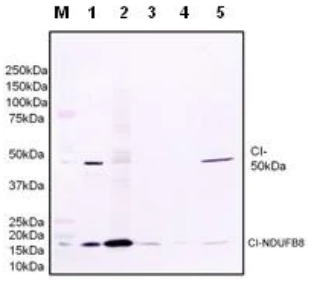
NDUFS2 Western blot staining using mouse Anti-NDUFS2 antibody

Lane 1: Wild-type HAP1 whole cell lysate (20 µg)
Lane 2: NDUFS2 knockout HAP1 whole cell lysate (20 µg)
Lane 3: HeLa whole cell lysate (20 µg)
Lane 4: Jurkat whole cell lysate (20 µg)
Lanes 1 - 4: Merged signal (red and green). Green - ab110249 observed at 48 kDa. Red - loading control, ab181602, observed at 37 kDa.

ab110249 was shown to specifically react with NDUFS2 in wild-type HAP1 cells whilst signal was lost in NDUFS2 knockout cells. Wild-type and NDUFS2 knockout samples were subjected to SDS-PAGE. ab110249 and ab181602 (Rabbit anti-GAPDH loading control) were incubated overnight at 4°C at 0.25 µg/ml and 1/20,000 dilution respectively. Blots were developed with Goat anti-Mouse IgG H&L (IRDye® 800CW) preabsorbed (ab216772) and Goat anti-Rabbit IgG H&L (IRDye® 680RD) preabsorbed (ab216777) secondary antibodies at 1/20,000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-NDUFS2 antibody [7A12BE5AD5] (ab110249)

Predicted band size: 53 kDa



Western blot - Anti-NDUFS2 antibody [7A12BE5AD5] (ab110249)

Complex I-subunit NDUFS2 is detected in the Human samples with Human specific ab110249, while Complex I-subunit NDUFB8 is detected in all samples (Human, Mouse and Rat) with an anti-NDUFB8.
All lanes:
Western blot - Anti-NDUFS2 antibody [7A12BE5AD5] (ab110249) at 0.25 µg/mL

Lane 1:
Molecular Weight Markers

Lane 2:
Isolated mitochondria from Human liver

Lane 3:
Isolated mitochondria from Bovine heart

Lane 4:
Isolated mitochondria from H9C2 cells (Rat cardiomyocyte)

Lane 5:
Isolated mitochondria from MEF cells (Mouse embryo fibroblast)

Lane 6:
Isolated mitochondria from HepG2

Predicted band size: 53 kDa

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b

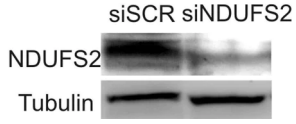


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Western blot - Anti-NDUFS2 antibody [7A12BE5AD5] (ab110249)

NDUFS2 western blot using anti-NDUFS2 antibody [7A12BE5AD5] ab110249. Publication image and figure legend from Hernansanz-Agustín, P., Ramos, E., et al., 2017, Redox Biol, PubMed 28511347.

ab110249 was used in this publication in western blot. This may not be the same as the application(s) guaranteed by Abcam. For a full list of applications guaranteed by Abcam for ab110249 please see the product overview.

Silencing of complex I subunits specifically affects the assembly of complex I-containing supercomplexes (a and b) Protein extracts from BAECs treated with siSCR, siNDUFS4 or siNDUFS2 were immunoblotted for NDUFS4 or NDUFS2 proteins with tubulin as loading control. Up: representative image; down: quantification of three independent experiments (mean±s.e.m.). (c and d) BN-PAGE of siSCR-treated or siNDUFS4-treated BAECs, analyzed by western blot with antibodies against NDUFB6 (complex I; c) or Core I (complex III; d). Representative image of three independent experiments.

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