abcam

ab110246

Anti-NDUFS3 antibody [3F9DD2]

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	3F9DD2
Purity	IgG fraction
Light chain type	kappa
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	ab110246 was produced in vitro using hybridomas grown in serum-free medium, and then purified by biochemical fractionation.ab110246 is judged as near homogeneity by SDS PAGE.

Reactivity data

WB

Tested

Species	Cow
Dilution info	0.5 µg/mL
Notes	-

Species	Rat
Dilution info	0.5 µg/mL
Notes	-

Species	Mouse
Dilution info	0.5 µg/mL
Notes	-

Species	Human
Dilution info	0.5 µg/mL
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/100 - 1/1000
Notes	Perform heat-mediated antigen retrieval via the pressure cooker method before commencing with IHC staining protocol.

Expected

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

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.

Expected

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

ICC/IF

Tested

Species	Human
Dilution info	5-10 µg/mL
Notes	-

Expected

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

Target data

See full target information NDUFS3

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:14729820, PubMed:30140060). Essential for the catalytic activity and assembly of complex I (PubMed:14729820, PubMed:24028823, PubMed:30140060).

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	NADH:ubiquinone oxidoreductase core subunit S3 (NDUFS3) is an important component of the mitochondrial respiratory chain complex I also known as NADH:ubiquinone oxidoreductase. With an approximate mass of 25 kDa NDUFS3 plays an integral role in the assembly and function of complex I. This protein is mostly expressed in the mitochondria across various tissues. It is better known as a core subunit important for the catalytic activity of complex I.
Biological function summary	NDUFS3 participates in cellular respiration by facilitating the electron transfer from NADH to ubiquinone. It is part of the complex I assembly that comprises 45 different subunits. This large assembly is the first enzyme of the mitochondrial electron transport chain and it ensures efficient energy production in the form of ATP. In its role NDUFS3 collaborates closely with other core subunits like NDUFS1 and NDUFS2 to maintain the proper function of cellular metabolism.
Pathways	NDUFS3 is essential in the oxidative phosphorylation pathway which plays an important part in ATP generation. By interacting with other complex I subunits NDUFS3 enables electron flow that drives ATP synthase activity. Additionally it is connected to the apoptosis pathway. Its dysfunction may result in disrupted energy metabolism which can trigger cell death. NDUFS3 also interacts with proteins like NDUFV1 and NDUFV2 highlighting its centrality in energy and signal transduction processes.
Associated diseases and disorders	NDUFS3 links to mitochondrial disorders and neurodegenerative diseases such as Leigh syndrome. Mutations in NDUFS3 can impair mitochondrial function leading to reduced ATP production and accumulation of defective mitochondria. These alterations contribute to the progressive deterioration seen in these disorders. In the context of neurodegenerative diseases NDUFS3 dysfunction may associate with proteins like cytochrome c emphasizing its role in mitochondria-dependent apoptotic pathways and neuronal health.

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

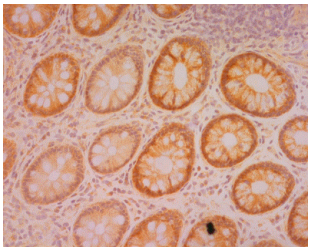
We do not recommend this combination. It is not covered by our product promise.

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.

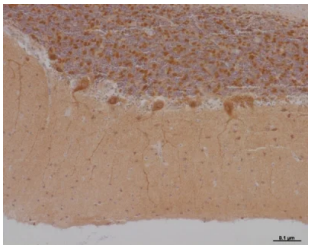
8 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-NDUFS3 antibody [3F9DD2] (ab110246)

NDUFS3 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-NDUFS3 antibody

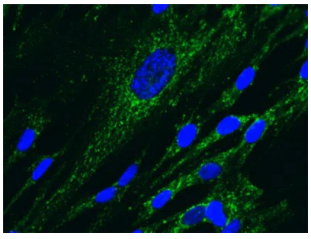
ab110246 staining NDUFS3 in Human colon tissue sections from a normal ageing patient by Immunohistochemistry. Kindly provided by Dr. L. Greaves and D. Turnbull, Mitochondrial Research Group, Newcastle University. For more details, see Taylor et al., J. Clin. Invest. 112:1351-1360 (2003).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-NDUFS3 antibody [3F9DD2] (ab110246)

NDUFS3 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-NDUFS3 antibody

ab110246, at 1/1000, staining NDUFS3 in formalin fixed and paraffin embedded Human cerebellum tissue by Immunohistochemistry. ab110246 was labeled with a universal probe (which recognizes antibodies raised in both mouse and rabbit species) for 30 minutes and a HRP-polymer probe for 30 minutes. ab110246 was diluted and incubated with the target for 1 hour. Antigen retrieval performed by 1 min pressure cooking with 1mmol EDTA, pH8.

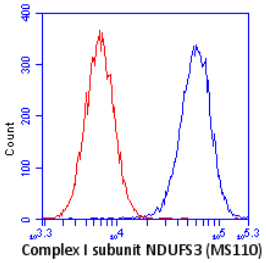


Immunocytochemistry/ Immunofluorescence - Anti-NDUFS3 antibody [3F9DD2] (ab110246)

NDUFS3 Immunocytochemistry/ Immunofluorescence staining using mouse Anti-NDUFS3 antibody

ab110246, at 10 µg/ml, staining NDUFS3 in cultured Human fibroblasts by Immunofluorescence. The cells were fixed, treated for heat-induced antigen retrieval, permeabilized and then labeled

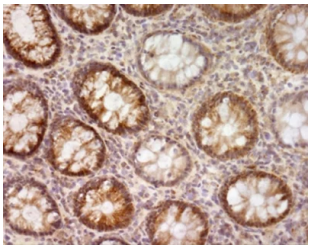
with ab110246, followed by a fluorescent goat-anti-mouse IgG.



Flow Cytometry - Anti-NDUFS3 antibody [3F9DD2] (ab110246)

NDUFS3 Flow Cytometry staining using mouse Anti-NDUFS3 antibody

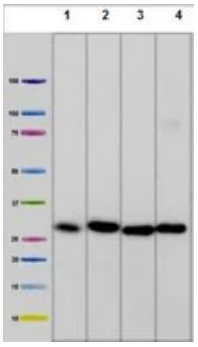
ab110246, at 1 µg/ml, staining NDUFS3 in HeLa cells by Flow Cytometry (Blue). Isotype control antibody, at 1 µg/ml, staining (red).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-NDUFS3 antibody [3F9DD2] (ab110246)

NDUFS3 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-NDUFS3 antibody

ab110246, at 1/100, staining NDUFS3 in Human colon tissue fixed with 4% PFA by Immunohistochemistry. ab110246 was labeled with a universal probe (which recognizes antibodies raised in both mouse and rabbit species) for 30 minutes and a HRP-polymer probe for 30 minutes. ab110246 was diluted and incubated for 1 hour with the target. Antigen retrieval was not required.



Western blot - Anti-NDUFS3 antibody [3F9DD2] (ab110246)

All lanes:
Western blot - Anti-NDUFS3 antibody [3F9DD2] (ab110246) at 0.5 µg/mL

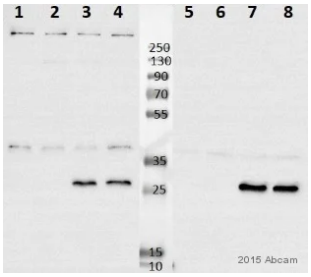
Lane 1:
Isolated mitochondria from Human heart at 5 µg

Lane 2:
Isolated mitochondria from Bovine heart at 1 µg

Lane 3:
Isolated mitochondria from Rat heart at 10 µg

Lane 4:
Isolated mitochondria from Mouse heart at 10 µg

Predicted band size: 30 kDa



This image is courtesy of an anonymous customer

Western blot - Anti-NDUFS3 antibody [3F9DD2] (ab110246)

All lanes:
Western blot - Anti-NDUFS3 antibody [3F9DD2] (ab110246) at 1/1000 dilution

Lanes 1 - 2:
Whole cell lysates from NDUFS3 KO cells. at 50 µg

Lanes 3 - 4:
Whole cell lysates from NDUFS3 WT cells. at 50 µg

review

Lanes 5 - 6:
Isolated mitochondria from NDUFS3 KO cells. at 50 µg

Lanes 7 - 8:
Isolated mitochondria from NDUFS3 WT cells. at 50 µg

Secondary

All lanes:
Goat anti-Mouse monoclonal HRP conjugate at 1/5000 dilution

Developed using the ECL technique.

Performed under reducing conditions.

Predicted band size: 30 kDa

Observed band size: 260 kDa, 40 kDa

Exposure time: 1min

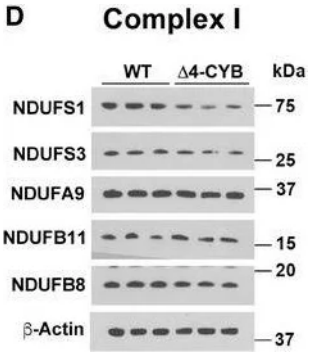


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Western blot - Anti-NDUFS3 antibody [3F9DD2] (ab110246)

NDUFS3 Western blot staining using mouse Anti-NDUFS3 antibody

Western Blotting using Anti-NDUFS3 antibody [3F9DD2]Anti-NDUFS3 antibody [3F9DD2], ab110246. Publication image from Protasoni, M. et al., 2020, EMBO J, 31912925. Legend direct from paper.

Reduced steady⊠state levels of structural MRC subunits in δ4⊠CYB cellsScatter plot generated from the peptide content analyzed by mass spectrometry in each of the 64 slices excised from BNGE and after quantifying the heavy⊠to⊠light (H/L) and light⊠to⊠heavy (L/H) ratios in both reciprocal labeling experiments performed with mitochondria isolated from WT and δ4⊠CYB cells (see also Fig EV1). The logarithmic ratios were calculated using MaxQuant (Cox & Mann, 2008), and the statistical significance of the differences for the enrichment or depletion of the proteins was determined with Perseus (Cox & Mann, 2011; Tyanova et al, 2016).Labeling of the thirteen mtDNA⊠encoded MRC structural subunits. Cells were incubated with [35S]⊠L⊠Met for 1 h in the presence of emetine 100 µg/ml to inhibit cytoplasmic translation.Immunodetection of complex III structural subunits on Western blots of total cell lysates separated by SDS–PAGE, from three independent replicates of WT and δ4⊠CYB cells. The graph shows the densitometric quantification of the signals corresponding to each subunit normalized to that of the β⊠Actin. The mean of the three control (WT) samples was set to 1.0, and all the measurements were referenced to that value. The values plotted in the graphs are the mean ± SD (n = 3). Two⊠way ANOVA with Sidak's multiple comparisons test ****P < 0.0001; ***P = 0.0007.Immunodetection of complex I structural subunits on Western blots of total cell lysates separated by SDS–PAGE, from three independent replicates of WT and δ4⊠CYB cells. The graph shows the densitometric quantification of the signals corresponding to each subunit normalized to that of the β⊠actin. The mean of the three control (WT) samples was set to 1.0, and all the measurements were referenced to that value. The values plotted in the graphs are the mean ± SD (n = 3). Two⊠way ANOVA with Sidak's multiple comparisons test ****P < 0.0001; **P = 0.0024 (NDUFS3); **P = 0.0061 (NDUFB8).Immunodetection of complex IV structural subunits on Western blots of total cell lysates separated by SDS–PAGE, from three independent replicates of WT and δ4⊠CYB cells. The graph shows the densitometric quantification of the signals corresponding to each subunit normalized to that of the β⊠Actin. The mean of the three control (WT) samples was set to 1.0, and all the measurements were referenced to that value. The values plotted in the graphs are the mean ± SD (n = 3). Two⊠way ANOVA with Sidak's multiple comparisons test **P = 0.0011.Immunodetection of complex II structural subunits on Western blots of total cell lysates separated by SDS–PAGE, from three independent replicates of WT and δ4⊠CYB cells. The graph shows the densitometric quantification of the signals corresponding to each subunit normalized to that of the β⊠actin. The

mean of the three control (WT) samples was set to 1.0, and all the measurements were referenced to that value. The values plotted in the graphs are the mean ± SD (n = 3). Two‐way ANOVA with Sidak's multiple comparisons test ****P < 0.0001.Immunodetection of complex V structural subunits on Western blots of total cell lysates separated by SDS–PAGE, from three independent replicates of WT and δ4‐CYB cells. The graph shows the densitometric quantification of the signals corresponding to each subunit normalized to that of the β‐actin. The mean of the three control (WT) samples was set to 1.0, and all the measurements were referenced to that value. The values plotted in the graphs are the mean ± SD (n = 3). There were no differences in the steady‐state levels of the tested subunits (2‐way ANOVA with Sidak's multiple comparisons test).Source data are available online for this figure.

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