abcam

ab14745

Anti-UQCRC2 antibody [13G12AF12BB11]

Anti-UQCRC2 antibody [13G12AF12BB11] (ab14745) is a mouse monoclonal antibody detecting UQCRC2 in **Western Blot, Flow Cytometry, IHC-P**. Suitable for **Human**.

- Over 290 publications
- Trusted since 2004

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	pH: 7.4 - 7.5 Preservative: 0.02% Sodium azide Constituents: HEPES buffered saline
Form	Liquid
Clonality	Monoclonal
Clone number	13G12AF12BB11
Purity	IgG fraction
Light chain type	kappa
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Human

Dilution info	1 µg/mL
Notes	Perform heat-mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.

Predicted

Species	Pig
Dilution info	-
Notes	-

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.

Predicted

Species	Pig
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	1 µg/mL
Notes	-

Predicted

Species	Pig
Dilution info	-

Notes	-

IF

Tested

Species	Human
Dilution info	0.1-0.5 µg/mL
Notes	Requires heat-induced antigen retrieval where aldehydes are used as fixatives.

Predicted

Species	Pig
Dilution info	-
Notes	-

Target data

See full target information UQCRC2

Function	Component of the ubiquinol-cytochrome c oxidoreductase, a multisubunit transmembrane complex that is part of the mitochondrial electron transport chain which drives oxidative phosphorylation. The respiratory chain contains 3 multisubunit complexes succinate dehydrogenase (complex II, CII), ubiquinol-cytochrome c oxidoreductase (cytochrome b-c1 complex, complex III, CIII) and cytochrome c oxidase (complex IV, CIV), that cooperate to transfer electrons derived from NADH and succinate to molecular oxygen, creating an electrochemical gradient over the inner membrane that drives transmembrane transport and the ATP synthase. The cytochrome b-c1 complex catalyzes electron transfer from ubiquinol to cytochrome c, linking this redox reaction to translocation of protons across the mitochondrial inner membrane, with protons being carried across the membrane as hydrogens on the quinol. In the process called Q cycle, 2 protons are consumed from the matrix, 4 protons are released into the intermembrane space and 2 electrons are passed to cytochrome c (By similarity). The 2 core subunits UQCRC1/QCR1 and UQCRC2/QCR2 are homologous to the 2 mitochondrial-processing peptidase (MPP) subunits beta-MPP and alpha-MPP respectively, and they seem to have preserved their MPP processing properties (By similarity). May be involved in the in situ processing of UQCRFS1 into the mature Rieske protein and its mitochondrial targeting sequence (MTS)/subunit 9 when incorporated into complex III (Probable).

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

What is this antibody validated in?
Anti-UQCRC2 antibody [13G12AF12BB11] (ab14745) is a mouse monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Flow Cyt), Immunohistochemistry (IHC-P) in Human samples.

Trusted by the scientific community
Anti-UQCRC2 [13G12AF12BB11] (ab14745) was first used in a scientific publication in 2004 and has been cited over 290 times in peer-reviewed journals.

Reviewed by scientists
Anti-UQCRC2 [13G12AF12BB11] (ab14745) has over 5 independent reviews from customers.

Other related products
We have a range of other formats of antibody clone [13G12AF12BB11] also available for your convenience: ab14745, Alexa Fluor® 647 - ab197652, HRP - ab197954

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	UQCRC2 also known as QCR2 is a subunit of the mitochondrial complex III also referred to as cytochrome bc1 complex. It has a molecular weight of approximately 48 kDa. This protein is located in the inner mitochondrial membrane across various tissue types playing an essential role in the mitochondrial electron transport chain. UQCRC2 facilitates the transfer of electrons from ubiquinol to cytochrome c which is an important step in cellular energy production.
Biological function summary	UQCRC2 participates in producing ATP which is the primary energy currency in cells. It forms part of the mitochondrial complex III a multi-subunit enzyme complex essential for efficient electron transfer and proton pumping. UQCRC2 contributes to establishing the proton gradient across the mitochondrial membrane which drives ATP synthesis through chemiosmotic processes. This function is critical for maintaining cellular energy homeostasis.

Pathways	The functionality of UQCRC2 links significantly to the oxidative phosphorylation and respiratory chain pathways. It ensures proper function in the oxidative phosphorylation pathway which generates the majority of ATP in aerobic organisms. UQCRC2 is associated with proteins such as cytochrome b and cytochrome c1 which collaborate in the electron transport chain ensuring the efficiency of the process and integrity of energy conversion.
Associated diseases and disorders	The aberrant function of UQCRC2 associates with mitochondrial disorders and certain cancers. Mutations affecting UQCRC2 function can lead to mitochondrial diseases characterized by energy production deficits resulting in neuromuscular and metabolic complications. Additionally studies have linked altered UQCRC2 expression to cancer where it may interact with proteins like p53 playing roles in metabolic reprogramming of cells.

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



Western blot - Anti-UQCRC2 antibody [13G12AF12BB11] (ab14745)

All lanes:
Western blot - Anti-UQCRC2 antibody [13G12AF12BB11] (ab14745) at 0.5 µg/mL

Lane 1:
Human skeletal muscle tissue lysate at 10 µg

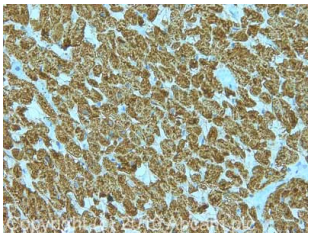
Lane 2:
Ramos (human Burkitt's lymphoma cell line) whole cell lysate at 10 µg

Secondary

All lanes:
Goat polyclonal to mouse IgG - H&L - pre-adsorbed (HRP) at 1/3000 dilution

Predicted band size: 48 kDa

Observed band size: 30 kDa, 48 kDa

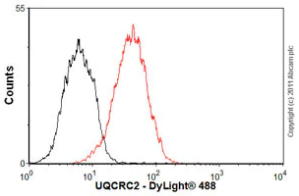


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-UQCRC2 antibody [13G12AF12BB11] (ab14745)

UQCRC2 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-UQCRC2 antibody

IHC image of ab14745 staining in human heart formalin fixed paraffin embedded tissue section, performed on a Leica Bond™ system using the standard protocol F. The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH6, epitope retrieval solution 1) for 20 mins. The section was then incubated with ab14745, 1µg/ml, for 15 mins at room temperature and detected using an HRP conjugated compact polymer system. DAB was used as the chromogen. The section was then counterstained with haematoxylin and mounted with DPX.

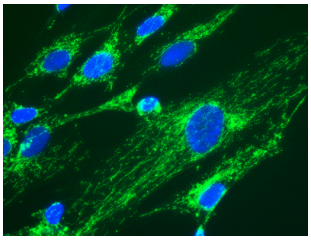
For other IHC staining systems (automated and non-automated) customers should optimize variable parameters such as antigen retrieval conditions, primary antibody concentration and antibody incubation times.



Flow Cytometry - Anti-UQCRC2 antibody [13G12AF12BB11] (ab14745)

UQCRC2 Flow Cytometry staining using mouse Anti-UQCRC2 antibody

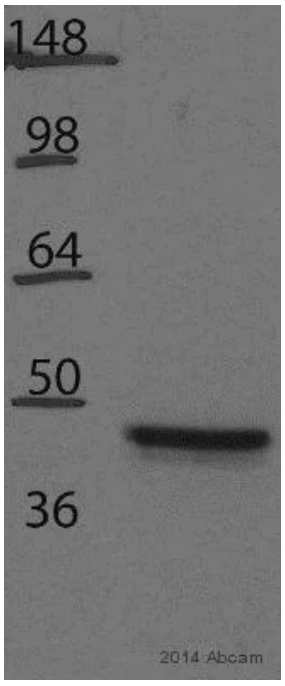
Overlay histogram showing HepG2 cells stained with ab14745 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab14745, 1µg/1x10^6 cells) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-mouse IgG (H+L) (ab96879) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was mouse IgG1 [ICIGG1](ab91353, 2µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed.



Immunofluorescence - Anti-UQCRC2 antibody [13G12AF12BB11] (ab14745)

UQCRC2 Immunofluorescence staining using mouse Anti-UQCRC2 antibody

Mitochondrial localization of complex III visualized by immunofluorescence using anti-complex III subunit Core 2 mAb 2E3GC12FB2AE2 (ab14745). Cultured human embryonic lung-derived fibroblasts (strain MRC5) were fixed, permeabilized and then labeled with ab14745 (0.5 µg/ml) followed by an AlexaFluor® 488-conjugated-goat-anti-mouse IgG1 isotype specific secondary antibody (2 µg/ml).



This image is courtesy of an anonymous customer review

Western blot - Anti-UQCRC2 antibody [13G12AF12BB11] (ab14745)

All lanes:
Western blot - Anti-UQCRC2 antibody [13G12AF12BB11] (ab14745) at 1/1000 dilution

All lanes:
H23 whole cell lysate at 20 µg

Secondary

All lanes:
HRP-conjugated goat anti-mouse IgG polyclonal at 1/2000 dilution

Developed using the ECL technique.

Performed under reducing conditions.

Predicted band size: 48 kDa

Observed band size: 48 kDa

Exposure time: 1min

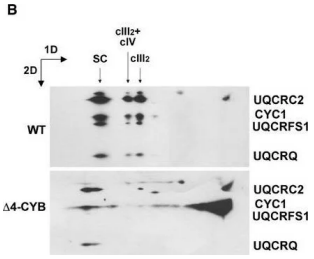


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Western blot - Anti-UQCRC2 antibody [13G12AF12BB11] (ab14745)

UQCRC2 Western blot staining using mouse Anti-UQCRC2 antibody

Western Blotting using Anti-UQCRC2 antibody [13G12AF12BB11], ab14745. Publication image from Protasoni, M. et al., 2020, EMBO J, 31912925. Legend direct from paper.

Blue⊠native gel electrophoresis (BNGE) mass spectrometry and immunodetection analysis of cIII2⊠related proteinsComplexome profiles of cIII2 structural subunits generated by analyzing the peptide content in each of the 64 slices in which the gel lanes were excised (see also Figs EV1 and EV2). The graphs plot the relative peptide peak intensities along the lane, setting the maximum to 1.0, versus the molecular mass calculated using the individual complexes and supercomplexes as the standards to generate a calibration curve. The relative amounts of the proteins between the two cell lines were determined by calculating the H/L ratios of peptides that were present in both WT (blue traces) and δ4⊠CYB samples (red traces). The represented values are the mean ± SEM of the two reciprocal labeling experiments.Second⊠dimension BNGE of digitonin⊠solubilized samples from WT and δ4⊠CYB cells, Western blot and immunodetection of the indicated cIII2 structural subunits with specific antibodies. The immunodetection patterns were equivalent to the complexome profiles.Quantification of the total peak area under the curves (AUC) defined by the peptide intensity peaks for the indicated cIII2 subunits. The x⊠axis values were the slice number (1⊠64), and the y⊠axis values were the relative peptide intensity. The graph shows the mean ± SD (n = 2). Two⊠way ANOVA with Sidak's multiple comparisons test **P = 0.0083

(UQCRC2); **P = 0.0033 (UQCRFS1); *P = 0.0224; n.s. = non⊠significant.Complexome profiles of two cIII2 assembly factors (BCS1L and LYRM7 or MZM1L) generated in the same way as in (A). The represented values are the mean ± SEM of the two reciprocal labeling experiments.Source data are available online for this figure.

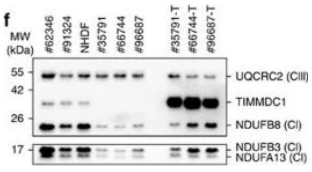


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Western blot - Anti-UQCRC2 antibody [13G12AF12BB11] (ab14745)

UQCRC2 Western blot staining using mouse Anti-UQCRC2 antibody

Western Blotting using Anti-UQCRC2 antibody [13G12AF12BB11], ab14745. Publication image from Kopajtich, R. et al., 2017, Nat Commun, 28604674. Legend direct from paper.

RNA aberrant expression detection and validation.(a) Aberrantly expressed genes (Hochberg corrected P value<0.05 and |Z-score|>3) for each patient fibroblasts. (b) Gene-wise RNA expression volcano plot of nominal P values (−log10P value) against Z-scores of the patient #35791 compared against all other fibroblasts. Z-scores with absolute value >5 are plotted at ±5, respectively. (c) Same as (b) for patient #73804. (d) Sample-wise RNA expression is ranked for the genes TIMMDC1 (top) and MGST1 (bottom). Samples with aberrant expression for the corresponding gene are highlighted in red (#35791, #66744, and #73804). (e) Gene-wise comparison of RNA and protein fold changes of patient #35791 compared to the average across the fibroblast cell lines of all other patients. Subunits of the mitochondrial respiratory chain complex I are highlighted (red squares). Reliably detected proteins that were not detected in this sample are shown separately with their corresponding RNA fold changes (points below solid horizontal line). (f) Western blot of TIMMDC1, NDUFA13, NDUFB3 and NDUFB8 protein in three fibroblast cell lines without (#62346, #91324, NHDF) and three with a variant in TIMMDC1 (#35791, #66744 and #96687), and fibroblasts re-expressing TIMMDC1 (‘-T’) (#35791-T, #66744-T and #96687-T). UQCRC2 was used as loading control. CI, complex I subunit; CIII, complex III subunit; MW, molecular weight. (g) Blue native PAGE blot of the control fibroblasts re-expressing TIMMDC1 (NHDF-T), the control fibroblasts (NHDF), patient fibroblasts (#96687) and patient fibroblast re-expressing TIMMDC1 (#96687-T). Immunodecoration for complex I and complex III was performed using NDUFB8 and UQCRC2 antibodies, respectively. CI, complex I subunit; CIII, complex III subunit.

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