abcam

ab13575

Anti-Cytochrome C antibody [7H8.2C12]

Anti-Cytochrome C antibody [7H8.2C12] (ab13575) is a mouse monoclonal antibody detecting Cytochrome C in **Western Blot, Flow Cytometry (Intra), IHC-P, ICC/IF**. Suitable for **Human**.

- Over 200 publications
- Trusted since 2004

Key facts

Isotype	IgG2b
Host species	Mouse
Storage buffer	pH: 7.4 Preservative: 0.02% Sodium azide Constituents: PBS, 6.97% L-Arginine
Form	Liquid
Clonality	Monoclonal
Clone number	7H8.2C12
Purification technique	Affinity purification
Epitope	The antibody recognizes an epitope within amino acids 93-104 of pigeon Cytochrome C, based on competitive ELISA results.
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 before commencing with IHC staining protocol.

Predicted

Species	Mouse, Rat, Horse, Pigeon, Drosophila melanogaster
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	0.1-1 µg for 10^6 Cells
Notes	ab170192 - Mouse monoclonal IgG2b, is suitable for use as an isotype control with this antibody.

Predicted

Species	Mouse, Rat, Horse, Pigeon, Drosophila melanogaster
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	1-5 µg/mL
Notes	-

Predicted

Species	Mouse, Rat, Horse, Pigeon, Drosophila melanogaster

Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	5 µg/mL
Notes	-

Predicted

Species	Mouse, Rat, Horse, Pigeon, Drosophila melanogaster
Dilution info	-
Notes	-

Target data

See full target information CYCS

Function	Electron carrier protein. The oxidized form of the cytochrome c heme group can accept an electron from the heme group of the cytochrome c1 subunit of cytochrome reductase. Cytochrome c then transfers this electron to the cytochrome oxidase complex, the final protein carrier in the mitochondrial electron-transport chain. Plays a role in apoptosis. Suppression of the anti-apoptotic members or activation of the pro-apoptotic members of the Bcl-2 family leads to altered mitochondrial membrane permeability resulting in release of cytochrome c into the cytosol. Binding of cytochrome c to Apaf-1 triggers the activation of caspase-9, which then accelerates apoptosis by activating other caspases.

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C

Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Notes

What is this antibody validated in?
Anti-Cytochrome C antibody [7H8.2C12] (ab13575) is a mouse monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Intra), Immunohistochemistry (IHC-P), Immunocytochemistry/immunofluorescence (ICC/IF) in Human samples.

What is the molecular weight of Cytochrome C?
Anti-Cytochrome C [7H8.2C12] (ab13575) specifically detects a band for Cytochrome C (UniProt: P99999) at a molecular weight of 12kDa.

Trusted by the scientific community
Anti-Cytochrome C [7H8.2C12] (ab13575) was first used in a scientific publication in 2004 and has been cited over 200 times in peer-reviewed journals.

Reviewed by scientists
Anti-Cytochrome C [7H8.2C12] (ab13575) has over 30 independent reviews from customers.

Other related products
We have a range of other formats of antibody clone [7H8.2C12] also available for your convenience: ab13575, HRP - ab199222, Carrier free - ab237966

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	Cytochrome C also referred to as "cytochrome c" or "Cyt C" is a small protein with a molecular weight of approximately 12 kDa. It is a component of the electron transport chain playing an essential mechanical role in cellular respiration. Cytochrome C is expressed in the mitochondria of eukaryotic cells where it functions as a heme protein. The mass of this protein allows efficient electron transfer between Complex III (cytochrome bc1 complex) and Complex IV (cytochrome c oxidase) contributing to ATP synthesis.
Biological function summary	Cytochrome c contributes to the process of oxidative phosphorylation within mitochondria. It is not only an important electron carrier but it also plays a significant role in apoptosis. In the event of cellular stress cytochrome c releases

	into the cytosol and forms part of the apoptosome complex. This apoptosome activation leads to the caspase cascade driving programmed cell death. Therefore cytochrome C serves as both a mediator of energy production and a regulator of apoptosis.
Pathways	Cytochrome c is integral to the mitochondrial electron transport chain and apoptotic pathways. It interacts with proteins in these pathways such as cytochrome c oxidase in oxidative phosphorylation and Apaf-1 during apoptosis. The electron transport chain's function is dependent on the efficient transfer of electrons facilitated by cytochrome c ensuring ATP production in cellular respiration.
Associated diseases and disorders	Cytochrome c links to conditions like cancer and neurodegenerative diseases. In cancer its role in the apoptotic pathway often emerges as cancer cells can develop mechanisms to evade apoptosis impacting cytochrome c release. For neurodegenerative diseases disruptions in mitochondrial function and cytochrome c's release can facilitate cell death implicating its role in conditions like Parkinson's disease. The interaction of cytochrome c with proteins such as p53 in response to cellular stress further highlights its involvement in disease pathogenesis.

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

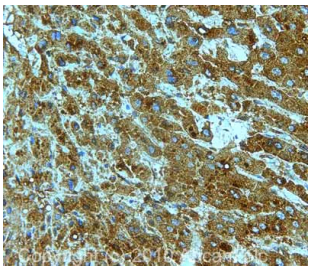
We do not recommend this combination. It is not covered by our product promise.

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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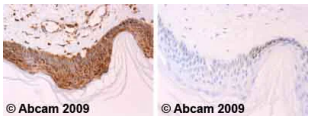
5 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Cytochrome C antibody [7H8.2C12] (ab13575)

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

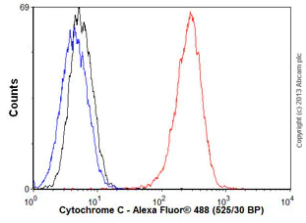
IHC image of Cytochrome C staining in human normal liver formalin fixed paraffin embedded tissue section, performed on a Leica Bond^{TM} system using the standard protocol F. The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH6, epitope retrieval solution 1) for 20 mins. The section was then incubated with ab13575, 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.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Cytochrome C antibody [7H8.2C12] (ab13575)

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

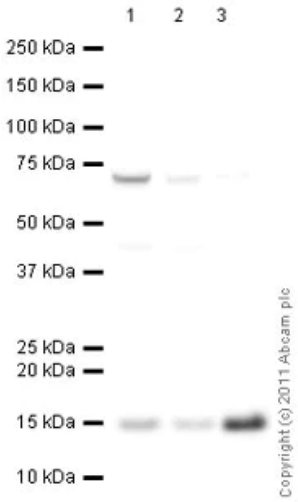
ab13575 staining human normal skin tissue. Staining is localised to mitochondria.
Left panel: with primary antibody at 4 ug/ml. Right panel: isotype control.
Sections were stained using an automated system DAKO Autostainer Plus , at room temperature. Sections were rehydrated and antigen retrieved with the Dako 3-in-1 antigen retrieval buffer EDTA pH 9.0 in a DAKO PT Link. Slides were peroxidase blocked in 3% H2O2 in methanol for 10 minutes. They were then blocked with Dako Protein block for 10 minutes (containing casein 0.25% in PBS) then incubated with primary antibody for 20 minutes 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 we recommend to optimize the primary antibody concentration and incubation time (overnight incubation), and amplification may be required.



Flow Cytometry (Intracellular) - Anti-Cytochrome C antibody [7H8.2C12] (ab13575)

Cytochrome C Flow Cytometry (Intracellular) staining using mouse Anti-Cytochrome C antibody

Overlay histogram showing HepG2 cells stained with ab13575 (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 (ab13575, 0.1µg/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]/mouse IgG2b [PLPV219] (ab91353/ab91366, 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.



Western blot - Anti-Cytochrome C antibody [7H8.2C12] (ab13575)

Cytochrome C Western blot staining using mouse Anti-Cytochrome C antibody

Abcam recommends using milk (5%) as the blocking agent. Abcam welcomes customer feedback and would appreciate any comments regarding this product and the data presented above.
All lanes:
Western blot - Anti-Cytochrome C antibody [7H8.2C12] (ab13575) at 1 µg/mL

Lane 1:
HeLa (Human epithelial carcinoma cell line) Whole Cell Lysate at 10 µg

Lane 2:
Jurkat (Human T cell lymphoblast-like cell line) Whole Cell Lysate at 10 µg

Lane 3:
Human heart tissue lysate - total protein (ab29431) at 10 µg

Secondary

All lanes:
Western blot - Goat Anti-Mouse IgG H&L (HRP) preadsorbed (ab97040) at 1/5000 dilution

Developed using the ECL technique.

Performed under reducing conditions.

Predicted band size: 11 kDa

Observed band size: 14 kDa

Exposure time: 3min

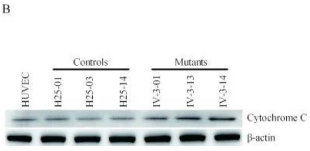


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Western blot - Anti-Cytochrome C antibody [7H8.2C12] (ab13575)

Cytochrome C Western blot staining using mouse Anti-Cytochrome C antibody

Western Blotting using Anti-Cytochrome C antibody [7H8.2C12], ab13575. Publication image from Jia, Z. et al., 2019, Nucleic Acids Res, 30541130. Legend direct from paper.

Analysis of apoptosis. (A) The distributions of cytochrome c from control cybrid cell line (H25-03), mutant cybrid cell line (IV-3-13) and HUVECs were visualized by immunofluorescent labeling with cytochrome c antibody conjugated to Alex Fluor 488 (green) analyzed by a confocal fluorescence microscope. Mitotracker Red-stained mitochondria and DAPI-stained nuclei were identified by red and blue fluorescence respectively. (B) Twenty micorgrams of total proteins from various cell lines were electrophoresed through a denaturing polyacrylamide gel, electroblotted, and hybridized with cytochrome c antibody with β-actin as a loading control. (C) Quantification of cytochrome c levels. The levels of cytochrome c in control and mutant cell lines were determined as described elsewhere (53). The calculations were based on three independent determinations in each cell line. (D) Twenty micrograms of total proteins from various cell lines were electrophoresed through a denaturing polyacrylamide gel, electroblotted, and hybridized with cleaved PARP, Caspases 3, 7 and 9 antibodies with β-actin as a loading control. (E) Quantification of four apoptosis-activated proteins. The levels of Caspases 9, 3, 7 and PARP in various cell lines were determined as described elsewhere (52). The calculations were based on three independent determinations in each cell line. Graph details and symbols are explained in the legend to Figure 3.

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