abcam

Product datasheet

Anti-AIF antibody - Mitochondrial Marker ab1998

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Overview

Product name	Anti-AIF antibody - Mitochondrial Marker
Description	Rabbit polyclonal to AIF - Mitochondrial Marker
Host species	Rabbit
Tested applications	**Suitable for:** WB, IHC-P, ICC/IF
Species reactivity	**Reacts with:** Mouse, Rat, Human
Immunogen	Synthetic peptide corresponding to Human AIF aa 500-600. Database link: **O95831-1**
Positive control	WB: Human Caco-2, Daudi, HeLa, HepG2, MCF7, NIH3T3, YB2/0 and K562 cell lysate. Rat and mouse heart lysate. IHC-P: Human retina. ICC/IF: Human U2OS and HeLa cells.
General notes	Apoptosis Inducing Factor The Life Science industry has been in the grips of a reproducibility crisis for a number of years. Abcam is leading the way in addressing this with our range of recombinant monoclonal antibodies and knockout edited cell lines for gold-standard validation. Please check that this product meets your needs before purchasing. If you have any questions, special requirements or concerns, please send us an inquiry and/or contact our Support team ahead of purchase. Recommended alternatives for this product can be found below, along with publications, customer reviews and Q&As

Properties

Form	Liquid
Storage instructions	Shipped at 4°C. Store at +4°C short term (1-2 weeks). Store at -20°C. Avoid freeze / thaw cycle. Stable for 12 months at -20°C.
Storage buffer	pH: 7.2 Preservative: 0.02% Sodium azide
Purity	Affinity purified
Purification notes	AIF Antibody is affinity chromatography purified via peptide column.
Clonality	Polyclonal
Isotype	IgG

Applications

The Abpromise guarantee Our **Abpromise guarantee** covers the use of ab1998 in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

Application	Abreviews	Notes
WB	★★★★★ **(2)**	Use a concentration of 0.25 - 1 µg/ml. Detects a band of approximately 67 kDa (predicted molecular weight: 67 kDa). Can be blocked with **AIF (internal) peptide (human)**.
IHC-P	★★★★★ **(1)**	Use at an assay dependent concentration.
ICC/IF		Use a concentration of 1 µg/ml.

Target

Function Probable oxidoreductase that has a dual role in controlling cellular life and death; during apoptosis, it is translocated from the mitochondria to the nucleus to function as a proapoptotic factor in a caspase-independent pathway, while in normal mitochondria, it functions as an antiapoptotic factor via its oxidoreductase activity. The soluble form (AIFsol) found in the nucleus induces 'parthanatos' i.e., caspase-independent fragmentation of chromosomal DNA. Interacts with EIF3G,and thereby inhibits the EIF3 machinery and protein synthesis, and activates casapse-7 to amplify apoptosis. Plays a critical role in caspase-independent, pyknotic cell death in hydrogen peroxide-exposed cells. Binds to DNA in a sequence-independent manner.

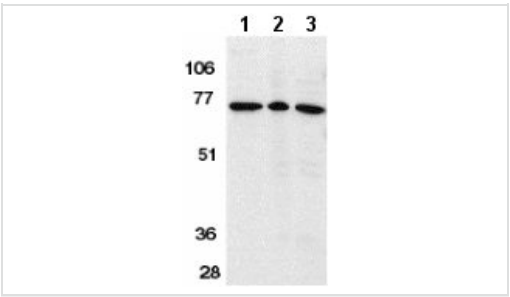
Involvement in disease Defects in AIFM1 are the cause of combined oxidative phosphorylation deficiency type 6 (COXPD6) [MIM:300816]. It is a mitochondrial disease resulting in a neurodegenerative disorder characterized by psychomotor delay, hypotonia, areflexia, muscle weakness and wasting.

Sequence similarities Belongs to the FAD-dependent oxidoreductase family.

Post-translational modifications Under normal conditions, a 54-residue N-terminal segment is first proteolytically removed during or just after translocation into the mitochondrial intermembrane space (IMS) by the mitochondrial processing peptidase (MPP) to form the inner-membrane-anchored mature form (AIFmit). During apoptosis, it is further proteolytically processed at amino-acid position 101 leading to the generation of the mature form, which is confined to the mitochondrial IMS in a soluble form (AIFsol). AIFsol is released to the cytoplasm in response to specific death signals, and translocated to the nucleus, where it induces nuclear apoptosis in a caspase-independent manner.

Cellular localization Mitochondrion intermembrane space. Mitochondrion inner membrane. Cytoplasm. Nucleus. Cytoplasm > perinuclear region. Proteolytic cleavage during or just after translocation into the mitochondrial intermembrane space (IMS) results in the formation of an inner-membrane-anchored mature form (AIFmit). During apoptosis, further proteolytic processing leads to a mature form, which is confined to the mitochondrial IMS in a soluble form (AIFsol). AIFsol is released to the cytoplasm in response to specific death signals, and translocated to the nucleus, where it induces nuclear apoptosis. Colocalizes with EIF3G in the nucleus and perinuclear region.

Images

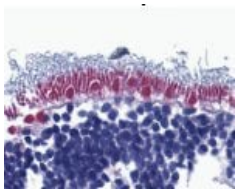


Western blot - Anti-AIF antibody - Mitochondrial Marker (ab1998)

All lanes : Anti-AIF antibody - Mitochondrial Marker (ab1998) at 1 µg/ml

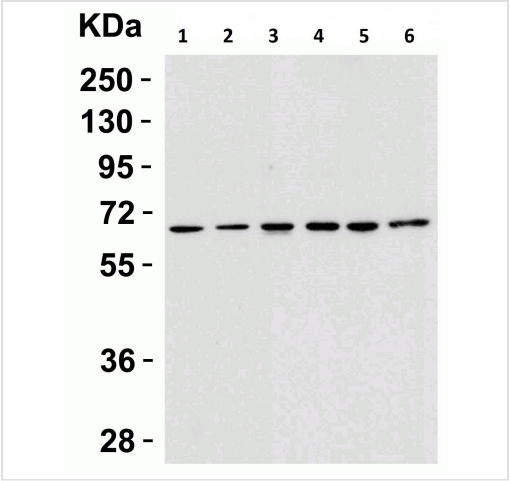
Lane 1 : K562 cell lysate
Lane 2 : Rat heart tissue lysate
Lane 3 : Mouse heart tissue lysate

Predicted band size: 67 kDa



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-AIF antibody - Mitochondrial Marker (ab1998)

Immunohistochemistry of AIF in human retina with anti-AIF (IN) at 10 µg/ml.



Western blot - Anti-AIF antibody - Mitochondrial Marker (ab1998)

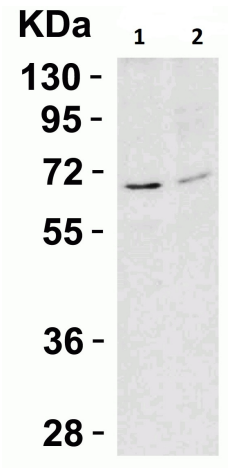
All lanes : Anti-AIF antibody - Mitochondrial Marker (ab1998) at 1 µg/ml

Lane 1 : Caco-2 cell lysate
Lane 2 : Daudi cell lysate
Lane 3 : HeLa cell lysate
Lane 4 : HepG2 cell lysate
Lane 5 : K562 cell lysate
Lane 6 : MCF7 cell lysate

Lysates/proteins at 15 µg per lane.

Secondary
All lanes : Goat anti-rabbit IgG HRP conjugate at 1/10000 dilution

Predicted band size: 67 kDa



Western blot - Anti-AIF antibody - Mitochondrial Marker (ab1998)

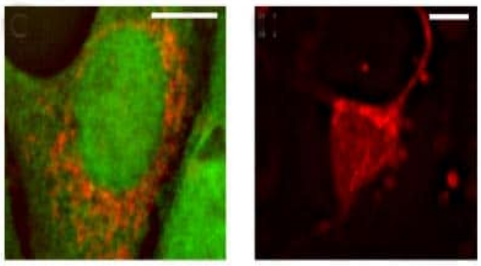
All lanes : Anti-AIF antibody - Mitochondrial Marker (ab1998) at 1 µg/ml

Lane 1 : NIH3T3 cell lysate
Lane 2 : YB2/0 cell lysate

Lysates/proteins at 15 µg per lane.

Secondary
All lanes : Goat anti-rabbit IgG HRP conjugate at 1/10000 dilution

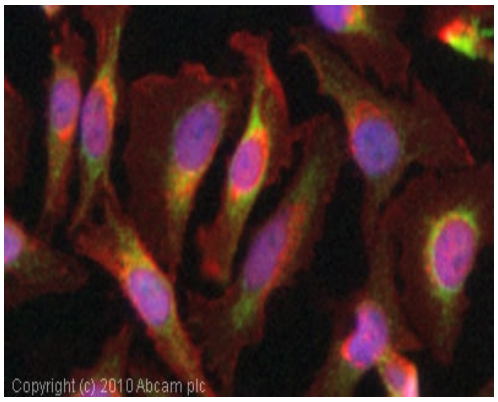
Predicted band size: 67 kDa



Immunocytochemistry/ Immunofluorescence - Anti-AIF antibody - Mitochondrial Marker (ab1998)

Image from Varecha M et al, J Biomed Sci. 2009 Jul 6;16:59, fig 2.

ab1998 staining AIF in human U2OS cells by Immunocytochemistry. Samples were fixed using 4% paraformaldehyde.Left image shows fixed cells labeled with ab1998 (red) and cyclophilin A (green). Right image shows U2OS cell 6 hours after induction of apoptosis by 200 nM staurosporine.Note translocated of AIF to the nucleus upon induction of apoptosis.



Immunocytochemistry/ Immunofluorescence - Anti-AIF antibody - Mitochondrial Marker (ab1998)

ICC image of ab1998 stained HeLa cells. The cells were 4% formaldehyde 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 (ab1998, 1µg/ml) overnight at +4°C. The secondary antibody (green) was Alexa Fluor® 488 goat anti-rabbit 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) at a concentration of 1.43µM.

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