abcam

ab119688

FITC Anti-ATP5A antibody [15H4C4] - Mitochondrial Marker

Anti-ATP5A antibody [15H4C4] conjugated to FITC - suitable for intracellular flow cytometry, ICC/IF, and reacts with human samples. Clone [15H4C4] is a mouse monoclonal antibody.

Lab Essentials

Key facts

Isotype	IgG2b
Host species	Mouse
Conjugation	FITC
Excitation/Emission	Ex: 495nm, Em: 519nm
Storage buffer	Preservative: 0.02% Sodium azide Constituents: PBS, 1% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	15H4C4
Purification technique	Precipitation Ammonium Sulphate
Light chain type	kappa
Concentration	0.5 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	Purity is near homogeneity as judged by SDS-PAGE. The antibody was produced in vitro using hybridomas grown in serum-free medium, and then concentrated by ammonium sulfate precipitation.

Reactivity data

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/100
Notes	ab18427 - Mouse monoclonal IgG2b, is suitable for use as an isotype control with this antibody.

Predicted

Species	Mouse, Rat, Cow, Caenorhabditis elegans, Drosophila melanogaster, Monkey
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/100
Notes	This product gave a positive signal in HeLa cells fixed with 4% formaldehyde (10 min) and 100% methanol (5 min)

Predicted

Species	Mouse, Rat, Cow, Caenorhabditis elegans, Drosophila melanogaster, Monkey
Dilution info	-
Notes	-

Target data

See full target information ATP5F1A

Function	Subunit alpha, of the mitochondrial membrane ATP synthase complex (F(1)F(0) ATP synthase or Complex V) that produces ATP from ADP in the presence of a proton gradient across the membrane which is generated by electron transport complexes of the respiratory chain (Probable). ATP synthase complex consist of a soluble F(1) head domain - the catalytic core - and a membrane F(1) domain - the membrane proton channel (PubMed:37244256). These two domains are linked by a central stalk rotating inside the F(1) region and a stationary peripheral stalk (PubMed:37244256). During catalysis, ATP synthesis in the catalytic domain of F(1) is coupled via a rotary mechanism of the central stalk subunits to proton translocation (Probable). In vivo, can only synthesize ATP although its ATP hydrolase activity can be activated artificially in vitro (By similarity). With the catalytic subunit beta (ATP5F1B), forms the catalytic core in the F(1) domain (PubMed:37244256). Subunit alpha does not bear the catalytic high-affinity ATP-binding sites (Probable). Binds the bacterial siderophore enterobactin and can promote mitochondrial accumulation of enterobactin-derived iron ions (PubMed:30146159).

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
Storage information	Avoid freeze / thaw cycle, Store in the dark

Supplementary info

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

Activity summary	ATP5A also known as ATP synthase F1 subunit alpha is a protein important for cellular energy production. As part of the ATP synthase complex it plays a mechanical role in synthesizing ATP from ADP and inorganic phosphate. The ATP5A protein has a molecular weight of approximately 55 kDa and is widely expressed in the inner mitochondrial membrane across different cell types. Its central function lies in its ability to harness the energy of the proton gradient generated by the electron transport chain to catalyze ATP synthesis.
Biological function summary	ATP5A is essential in cellular respiration serving as a catalytic core of the F1 component of ATP synthase. As part of the multi-subunit enzyme complex ATP synthase is responsible for ATP production the primary energy currency in cells. The ATP5A subunit works in conjunction with other subunits of the enzyme oligomer to facilitate the conversion of energy released during oxidative

	phosphorylation into a usable form. The protein's efficiency in this biological role underpins its importance in sustaining cellular energy homeostasis.
Pathways	ATP5A plays a pivotal role in oxidative phosphorylation and the electron transport chain integral components of cellular respiration. The oxidative phosphorylation pathway depends on this protein to manage the synthesis of ATP molecules while the electron transport chain creates the proton gradient necessary for ATP production. ATP5A is functionally connected to other proteins in these pathways such as ATP5B and cytochrome c oxidase working in a coordinated manner to ensure efficient energy transfer and maintenance.
Associated diseases and disorders	ATP5A is implicative in mitochondrial disorders and neurodegenerative diseases such as Leigh syndrome and Parkinson's disease. These conditions often arise from deficits in ATP production where ineffective ATP synthase activity can contribute to cellular energy failures. In the context of Parkinson’s disease for instance ATP5A interactions with other proteins like Parkin can contribute to mitochondrial dysfunction an important pathological feature of the disorder. Through such associations alterations in ATP5A activity can significantly impact disease progression and symptomatology.

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

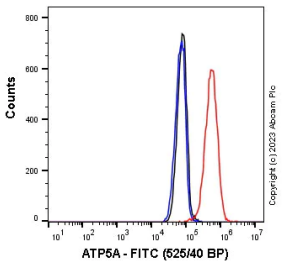
We do not recommend this combination. It is not covered by our product promise.

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.

5 product images



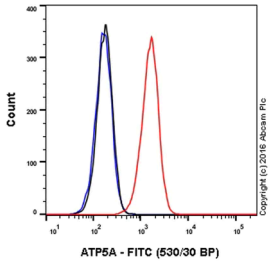
Flow Cytometry (Intracellular) - FITC Anti-ATP5A antibody [15H4C4] - Mitochondrial Marker (ab119688)

ATP5A Flow Cytometry (Intracellular) staining of HeLa cells using mouse Anti-ATP5A antibody

Flow cytometry overlay histogram showing HeLa cells stained with ab119688 (red line). The cells were fixed with 4% formaldehyde (10 min) and then permeabilised with 90% methanol for 30 min. The cells were incubated in 1x PBS containing 10% normal goat serum to block non-specific protein-protein interaction followed by the antibody (ab119688) (1x 10^6 in 100µl at 1.0µg/ml) for 30min at 22°C.

Isotype control antibody (black line) was ab314952 (1.0µg/ml (1/500)) used at the same concentration and conditions as the primary antibody. Unlabelled sample (blue line) was also used as a control.

Acquisition of >5000 events were collected using a 50 mW Blue laser (488nm) and 525/40 bandpass filter.



Flow Cytometry (Intracellular) - FITC Anti-ATP5A antibody [15H4C4] - Mitochondrial Marker (ab119688)

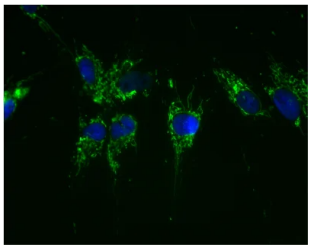
ATP5A Flow Cytometry (Intracellular) staining using mouse Anti-ATP5A antibody

Overlay histogram showing HeLa cells stained with ab119688 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Triton X-100 for 15 min. The cells were then incubated in 1x PBS / 10% normal goat serum to block non-specific protein-protein interactions followed by the antibody (ab119688, 1/100 dilution) for 30 min at 22°C.

Isotype control antibody (black line) was mouse IgG2b FITC (ab18419) used at the same concentration and conditions as the primary antibody. Unlabelled sample (blue line) was also used as a control.

Acquisition of >5,000 events were collected using a 50 mW Blue laser (488nm) and 530/30 bandpass filter.

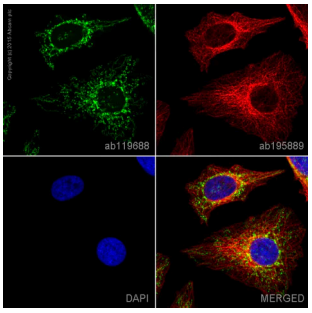
This antibody gave a positive signal in HeLa cells fixed with 4% formaldehyde (10 min)/permeabilized with 0.1% PBS-Triton X-100 for 15 min used under the same conditions.



Immunocytochemistry/ Immunofluorescence - FITC Anti-ATP5A antibody [15H4C4] - Mitochondrial Marker (ab119688)

ATP5A Immunocytochemistry/ Immunofluorescence staining using mouse Anti-ATP5A antibody

Mitochondrial localization of ATP5A using antibody ab119688. Cultured HeLa cells were fixed, permeabilized and then labeled with 15H4C4-FITC (1 µg/ml). Since the antibody is labeled with FITC no secondary antibody is necessary.

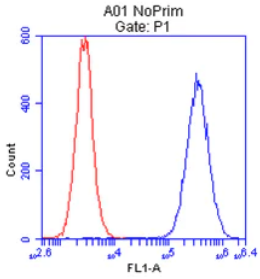


Immunocytochemistry/ Immunofluorescence - FITC Anti-ATP5A antibody [15H4C4] - Mitochondrial Marker (ab119688)

ATP5A Immunocytochemistry/ Immunofluorescence staining using mouse Anti-ATP5A antibody

ab119688 staining ATP5A in HeLa cells. The cells were fixed with 4% formaldehyde (10 min), 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 overnight at +4°C with ab119688 at 1/100 dilution (shown in green) and ab195889, Mouse monoclonal to alpha Tubulin (Alexa Fluor® 594), at 1/250 dilution (**pseudocolored in red**). Nuclear DNA was labelled with DAPI (shown in blue).
Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8).

This product also gave a positive signal under the same testing conditions in HeLa cells fixed with 100% methanol (5min).



Flow Cytometry (Intracellular) - FITC Anti-ATP5A antibody [15H4C4] - Mitochondrial Marker (ab119688)

ATP5A Flow Cytometry (Intracellular) staining using mouse Anti-ATP5A antibody

Overlay histogram showing HeLa cells stained with ab119688 (blue line). The cells were fixed with 4% paraformaldehyde (10 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 ab119688 (15H4C4 FITC) at 1µg/1xE6/mL cells for 30 min at 22°C. Negative control (red line) is unstained d cells. Acquisition of >5,000 events was performed. This antibody gave a positive signal in HeLa cells fixed with 80% methanol (5 min)/permeabilized in 0.1% PBS-Tween used under the same conditions.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.