abcam

## ab113691

# Anti-Frataxin antibody [17A11]

Anti-Frataxin antibody [17A11] (ab113691) is a mouse monoclonal antibody detecting Frataxin in **Western Blot, Flow Cytometry, IHC-P, ICC/IF**. Suitable for **Cow, Human, Mouse, Rat,**.

- Over 10 publications

## 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 |
| **Immunogen** | The exact immunogen used to generate this antibody is proprietary information. |
| **Clone number** | 17A11 |
| **Light chain type** | kappa |
| **Concentration** | 1 mg/mL The concentration of this product may be batch-dependent<br>Batch concentration finder → |
| **Purification notes** | The antibody was produced in vitro using hybridomas grown in serum-free medium, and then purified by affinity purification. |

## Reactivity data

## Flow Cyt

### Tested

| | |
|---|---|
| **Species** | Human |

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|---|---|
| **Dilution info** | 1 µg/mL |
| **Notes** | ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody. |

### Expected

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

### Not recommended

| | |
|---|---|
| **Species** | Recombinant full length protein |
| **Dilution info** | - |
| **Notes** | - |

## WB

### Tested

| | |
|---|---|
| **Species** | Recombinant full length protein |
| **Dilution info** | 4 µg/mL |
| **Notes** | - |

| | |
|---|---|
| **Species** | Mouse |
| **Dilution info** | 4 µg/mL |
| **Notes** | - |

| | |
|---|---|
| **Species** | Rat |
| **Dilution info** | 4 µg/mL |
| **Notes** | - |

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 4 µg/mL |
| **Notes** | - |

| | |
|---|---|
| **Species** | Cow |

| | |
|---|---|
| **Dilution info** | 4 µg/mL |
| **Notes** | - |

## ICC/IF

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1 µg/mL |
| **Notes** | - |

### Expected

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

### Not recommended

| | |
|---|---|
| **Species** | Recombinant full length protein |
| **Dilution info** | - |
| **Notes** | - |

## IHC-P

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 10 µg/mL |
| **Notes** | - |

### Expected

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

**Not recommended**

| | |
|---|---|
| **Species** | Recombinant full length protein |
| **Dilution info** | - |
| **Notes** | - |

## Target data

See full target information FXN

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|---|---|
| **Function** | Frataxin mature form. Functions as an activator of persulfide transfer to the scaffoding protein ISCU as component of the core iron-sulfur cluster (ISC) assembly complex and participates to the [2Fe-2S] cluster assembly (PubMed:12785837, PubMed:24971490). Accelerates sulfur transfer from NFS1 persulfide intermediate to ISCU and to small thiols such as L-cysteine and glutathione leading to persulfuration of these thiols and ultimately sulfide release (PubMed:24971490). Binds ferrous ion and is released from FXN upon the addition of both L-cysteine and reduced FDX2 during [2Fe-2S] cluster assembly (PubMed:29576242). The core iron-sulfur cluster (ISC) assembly complex is involved in the de novo synthesis of a [2Fe-2S] cluster, the first step of the mitochondrial iron-sulfur protein biogenesis. This process is initiated by the cysteine desulfurase complex (NFS1:LYRM4:NDUFAB1) that produces persulfide which is delivered on the scaffold protein ISCU in a FXN-dependent manner. Then this complex is stabilized by FDX2 which provides reducing equivalents to accomplish the [2Fe-2S] cluster assembly. Finally, the [2Fe-2S] cluster is transferred from ISCU to chaperone proteins, including HSCB, HSPA9 and GLRX5 (By similarity). May play a role in the protection against iron-catalyzed oxidative stress through its ability to catalyze the oxidation of Fe(2+) to Fe(3+); the oligomeric form but not the monomeric form has in vitro ferroxidase activity (PubMed:15641778). May be able to store large amounts of iron in the form of a ferrihydrite mineral by oligomerization; however, the physiological relevance is unsure as reports are conflicting and the function has only been shown using heterologous overexpression systems (PubMed:11823441, PubMed:12755598). May function as an iron chaperone protein that protects the aconitase [4Fe-4S]2+ cluster from disassembly and promotes enzyme reactivation (PubMed:15247478). May play a role as a high affinity iron binding partner for FECH that is capable of both delivering iron to ferrochelatase and mediating the terminal step in mitochondrial heme biosynthesis (PubMed:15123683, PubMed:16239244). Extramitochondrial frataxin. Modulates the RNA-binding activity of ACO1 (PubMed:20053667). May be involved in the cytoplasmic iron-sulfur protein biogenesis (PubMed:16091420). May contribute to oxidative stress resistance and overall cell survival (PubMed:16608849). |

## Storage

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| **Shipped at conditions** | Blue Ice |

| | |
|---|---|
| **Appropriate short-term storage conditions** | +4°C |
| **Appropriate long-term storage conditions** | +4°C |

## Notes

**Product Specifications**
Anti-Frataxin antibody [17A11] (ab113691) is a mouse monoclonal antibody and is validated for use in Flow Cyt, ICC/IF, IHC-P, WB in cow, human, mouse and rat samples.
Anti-Frataxin antibody [17A11] (ab113691) specifically detects Frataxin (UniProt ID: Q16595; Molecular weight: 19kDa) and is sold in 100 µg and 1 mg selling sizes.

**Quality and Validation**
Abcam's high quality validation processes ensure Anti-Frataxin antibody [17A11] (ab113691) has high sensitivity and specificity.
Anti-Frataxin antibody [17A11] (ab113691) has been cited over 17 times in peer reviewed journals and is trusted by the scientific community.

**Related Products**
Antibody clone 17A11 is also available pre-conjugated to a variety of labels for your convenience - Alexa Fluor® 488, HRP (ab197963, ab197964).

**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.

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|---|---|
| **Activity summary** | Frataxin often known by the alternate name FXN is a mitochondrial protein with a mass of approximately 21000 Dalton. It is expressed mainly in tissues with high energy demands like the heart liver and pancreas. Frataxin plays an important role in iron-sulfur cluster assembly which is essential for various cellular processes. The protein is a part of mitochondria where it regulates iron homeostasis and prevents oxidative damage by minimizing iron-induced free radical generation. |
| **Biological function summary** | Several cellular processes depend on the correct function of this protein. Frataxin assists in forming iron-sulfur clusters acting within a multiprotein complex in the mitochondria. The complex includes proteins such as ISCU which are involved in the assembly and repair of iron-sulfur clusters. These clusters are necessary for supporting mitochondrial electron transport and other fundamental metabolic pathways that require iron-sulfur dependencies. |
| **Pathways** | Frataxin's involvement extensively affects the mitochondrial respiratory chain and the mitochondrial biogenesis process. It plays a role in the electron transport |

| | |
|---|---|
| | chain by stabilizing iron-sulfur-containing complexes. NAB is one associated protein that interacts closely within these pathways sharing a connection through iron-sulfur cluster transportation and assembly systems. Efficient function of these pathways ensures a proper energetic output of cells. |
| **Associated diseases and disorders** | Frataxin mutations are directly linked to Friedreich's ataxia a neurodegenerative disease causing progressive damage to the nervous system. The deficiency or dysfunction in frataxin causes accumulation of iron in mitochondria leading to increased oxidative stress. Another related disorder includes heart disease which emerges due to the same oxidative stress pathway. Proteins such as Nfs1 are also involved sharing the responsibility with frataxin in scavenging excess iron protecting against related tissue damage. |

## 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**

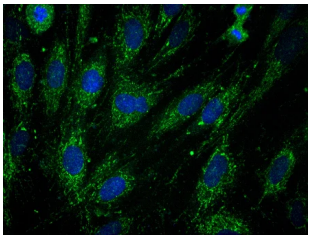
We do not recommend this combination. It is not covered by our product promise.

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.

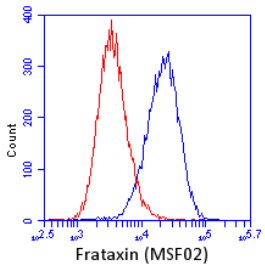
## 4 product images



### Immunocytochemistry/ Immunofluorescence - Anti-Frataxin antibody [17A11] (ab113691)

Frataxin Immunocytochemistry/ Immunofluorescence staining using mouse Anti-Frataxin antibody

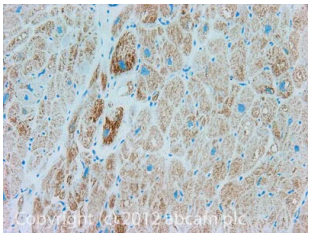
ab113691 stained fibroblast cells. The cells were paraformaldehyde fixed (4%, 20 min) and Triton X-100 permeabilized (0.1%, 15min). The cells were incubated with the antibody (ab113691, 1µg/ml) for 2h at room temperature or over night at 4°C. The secondary antibody was (green) Alexa Fluor® 488 goat anti-mouse IgG (H+L) used at a 1/1000 dilution for 1h. 10% Goat serum was used as the blocking agent for all blocking steps. The target protein locates to the mitochondrial matrix.




## Flow Cytometry - Anti-Frataxin antibody [17A11] (ab113691)

Frataxin Flow Cytometry staining using mouse Anti-Frataxin antibody

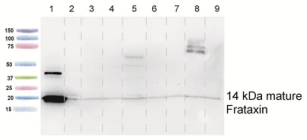
Normal human lymphoblast cells were stained with 1 µg/mL ab113691 (blue) or an equal amount of an isotype control antibody (red) and analyzed by flow cytometry.



## Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Frataxin antibody [17A11] (ab113691)

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

IHC image of Frataxin staining in Human normal heart muscle formalin fixed paraffin embedded tissue section, performed on a Leica BondTM 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 ab113691, 10µg/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.




## Western blot - Anti-Frataxin antibody [17A11] (ab113691)

All lanes:
Western blot - Anti-Frataxin antibody [17A11] (ab113691)

Lane 1:
Recombinant frataxin at 0.1 µg

Lane 2:
Human heart mitochondria at 15 µg

Lane 3:
Human liver mitochondria at 15 µg

Lane 4:
HepG2 whole cell lysate at 15 µg

Lane 5:
Bovine heart mitochondria at 15 µg

Lane 6:

H9C2 rat whole cell lysate at 15 µg

Lane 7:
MEF mouse embryonic fibroblast at 15 µg

Lane 8:
Mouse liver mitochondria at 15 µg

Lane 9:
Rat liver mitochondria at 15 µg

Predicted band size: 23 kDa

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