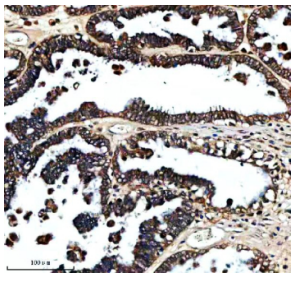
FXN Antibody / Frataxin (FY13347)

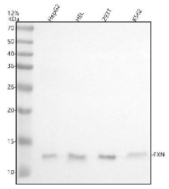
Catalog No.	Formulation	Size
FY13347	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

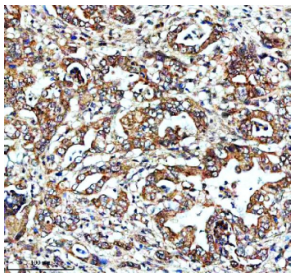
Availability	1-2 days
Species Reactivity	Human
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	Q16595
Localization	Cytoplasm, Mitochondria
Applications	Western Blot : 0.25-0.5ug/ml Immunohistochemistry : 2-5ug/ml Flow Cytometry : 1-3ug/million cells ELISA : 0.1-0.5ug/ml
Limitations	This FXN antibody is available for research use only.



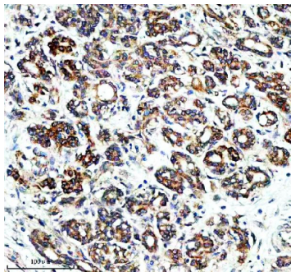
FXN Antibody Ovarian Carcinoma IHC. Immunohistochemical staining of FFPE human ovarian carcinoma tissue using anti-FXN antibody demonstrates strong granular cytoplasmic HRP-DAB brown staining within malignant gland-forming epithelial cells, consistent with mitochondrial localization of Frataxin / FXN in metabolically active tumor-associated cellular populations. The observed staining pattern supports the established role of FXN in mitochondrial iron homeostasis and oxidative metabolism-associated pathways. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0). The tissue section was blocked with 10% goat serum followed by incubation with 2 ug/ml rabbit anti-FXN antibody overnight at 4Â°C. Peroxidase-conjugated goat anti-rabbit IgG was used as secondary antibody and incubated for 30 min at 37Â°C before HRP-DAB visualization.



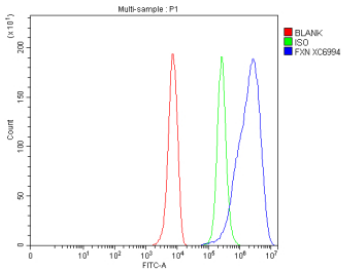
FXN Antibody Multi-Cell Line WB. Western blot analysis of human HepG2, HEL, 293T, and K562 whole cell lysates using anti-FXN antibody demonstrates consistent bands near 13-15 kDa across all tested cell lines, corresponding to the mature processed form of Frataxin / FXN following mitochondrial import-associated cleavage. The observed expression profile supports widespread cellular distribution of this mitochondrial iron metabolism protein and aligns with the established role of FXN in iron-sulfur cluster biogenesis and oxidative phosphorylation-associated energy regulation. Electrophoresis was performed on a 12% SDS-PAGE gel followed by transfer to nitrocellulose membrane and HRP-ECL detection.



FXN Antibody Pancreatic Adenocarcinoma IHC. Immunohistochemical staining of FFPE human pancreatic carcinoma tissue using anti-FXN antibody demonstrates extensive granular cytoplasmic HRP-DAB brown staining within malignant glandular epithelial cells, consistent with mitochondrial localization of Frataxin / FXN in metabolically active tumor-associated cellular compartments. The observed staining pattern supports the established role of FXN in mitochondrial iron homeostasis, oxidative phosphorylation, and iron-sulfur cluster-associated metabolic pathways. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0). The tissue section was blocked with 10% goat serum followed by overnight incubation with 2 ug/ml rabbit anti-FXN antibody at 4Â°C. Peroxidase-conjugated goat anti-rabbit IgG was used as secondary antibody prior to HRP-DAB chromogenic detection.



FXN Antibody Mitochondrial Tumor Marker IHC. Immunohistochemical staining of FFPE human pancreatic cancer tissue using anti-FXN antibody reveals strong granular cytoplasmic HRP-DAB brown staining within malignant epithelial glands and clustered tumor-associated cellular structures. The punctate staining distribution is consistent with mitochondrial localization of Frataxin / FXN and supports its established involvement in oxidative metabolism and mitochondrial iron regulation within high energy-demand carcinoma tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0). Tissue sections were blocked with 10% goat serum prior to overnight incubation with 2 ug/ml rabbit anti-FXN antibody at 4Â°C, followed by HRP-conjugated secondary antibody and DAB chromogenic visualization.



FXN Antibody HepG2 FACS. Flow cytometry analysis of fixed and permeabilized human HepG2 cells using anti-FXN antibody demonstrates a pronounced rightward fluorescence shift relative to isotype control, supporting intracellular expression of Frataxin / FXN within hepatic-derived cells. The observed staining profile is consistent with detection of this mitochondrial iron metabolism protein involved in iron-sulfur cluster assembly and oxidative phosphorylation-associated cellular pathways. Blue=FXN antibody, Green=isotype control, Red=blank control.

Description

FXN antibody detects Frataxin, a mitochondrial matrix protein encoded by the FXN gene on chromosome 9q21.11. Frataxin plays a fundamental role in iron-sulfur (Fe-S) cluster biogenesis, iron homeostasis, and oxidative stress protection. It is ubiquitously expressed but highly abundant in metabolically active tissues such as heart, skeletal muscle, pancreas, and neurons, where mitochondrial energy metabolism is critical. FXN belongs to the frataxin family of mitochondrial proteins and is essential for the proper function of enzymes involved in oxidative phosphorylation and the tricarboxylic acid (TCA) cycle.

FXN acts as an iron chaperone that delivers ferrous iron (Fe2+) to scaffold proteins such as ISCU for the assembly of Fe-S clusters. These clusters serve as cofactors for numerous mitochondrial enzymes, including aconitase and complex I-III components of the respiratory chain. By regulating mitochondrial iron utilization, FXN prevents toxic iron accumulation

and the generation of reactive oxygen species (ROS). Co-localization studies demonstrate FXN interaction with ISCU and NFS1 within mitochondrial nucleoids, coordinating Fe-S cluster synthesis and incorporation into target proteins.

Structurally, Frataxin is a small alpha-beta fold protein with a conserved acidic ridge that binds iron ions. It belongs to the mitochondrial Fe-S cluster assembly machinery family. FXN also associates with chaperones and proteases such as HSP60 and Lon protease, maintaining protein stability and turnover in the mitochondrial matrix. It undergoes processing from a cytosolic precursor into a mature mitochondrial form via the mitochondrial targeting sequence at its N-terminus.

Functionally, FXN is crucial for cellular respiration, antioxidant defense, and metabolic balance. It supports the activity of Fe-S-dependent enzymes in the electron transport chain and modulates mitochondrial redox status. In neurons, FXN ensures energy supply and protects against oxidative stress, while in cardiac tissue, it maintains contractile efficiency by preserving mitochondrial integrity. Developmentally, FXN expression peaks during embryogenesis and early postnatal stages, coinciding with rapid mitochondrial biogenesis in growing tissues.

Loss-of-function mutations in FXN cause Friedreich's ataxia, an autosomal recessive neurodegenerative disease characterized by impaired motor coordination, cardiomyopathy, and diabetes. The deficiency leads to mitochondrial iron overload, defective Fe-S cluster assembly, and increased oxidative stress. Pathway involvement includes Fe-S cluster biosynthesis, oxidative phosphorylation, and cellular stress response. In cancer research, FXN downregulation is associated with altered metabolic reprogramming and mitochondrial dysfunction.

Immunohistochemical staining using FXN antibody shows mitochondrial localization in neurons, cardiac myocytes, and hepatocytes. The FXN antibody from NSJ Bioreagents is a reliable reagent for studying mitochondrial metabolism, iron homeostasis, and neurodegenerative disease mechanisms such as Friedreich's ataxia.

For additional Frataxin and mitochondrial metabolism research antibodies targeting iron-sulfur cluster assembly, oxidative phosphorylation pathways, and mitochondrial iron homeostasis proteins, explore the broader FXN Antibody page featuring monoclonal clone FXN/2124.

Application Notes

Optimal dilution of the FXN antibody should be determined by the researcher.

Immunogen

E.coli-derived human FXN recombinant protein (Position: Q20-A210) was used as the immunogen for the FXN antibody.

Storage

After reconstitution, the FXN antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.