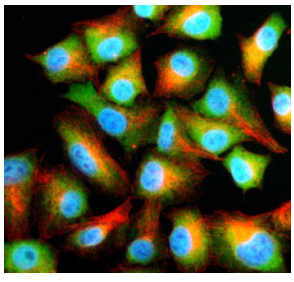
NFU1 Antibody / HIRA-interacting protein 5 / HIRIP5 (FY12431)

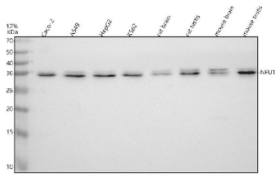
Catalog No.	Formulation	Size
FY12431	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

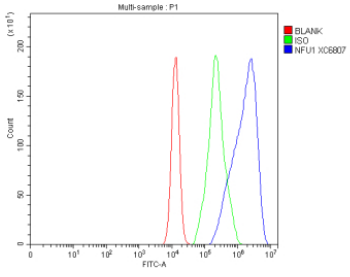
Availability	1-2 days
Species Reactivity	Human, Mouse, Rat
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	Q9UMS0
Localization	Cytoplasm, Mitochondria
Applications	Western Blot : 0.25-0.5ug/ml Immunocytochemistry/Immunofluorescence : 5ug/ml Flow Cytometry : 1-3ug/million cells ELISA : 0.1-0.5ug/ml
Limitations	This NFU1 antibody is available for research use only.



Immunofluorescent staining of NFU1 using anti-NFU1 antibody (green) and anti-Beta Tubulin antibody (red). NFU1 was detected in an immunocytochemical section of cells. Enzyme antigen retrieval was performed using IHC enzyme antigen retrieval reagent for 15 mins. The cells were blocked with 10% goat serum. And then incubated with 5 ug/ml rabbit anti-NFU1 antibody and mouse anti-Beta Tubulin antibody overnight at 4oC. DyLight 488 Conjugated Goat Anti-Rabbit IgG and Cy3 Conjugated Goat Anti-Mouse IgG were used as secondary antibody at 1:500 dilution and incubated for 30 minutes at 37oC. The section was counterstained with DAPI nuclear stain (blue). Visualize using a fluorescence microscope and filter sets appropriate for the label used.



Western blot analysis of NFU1 using anti-NFU1 antibody. Electrophoresis was performed on a 12% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 1: human Caco-2 whole cell lysates, Lane 2: human whole cell lysates, Lane 3: human HepG2 whole cell lysates, Lane 4: human K562 whole cell lysates, Lane 5: rat brain tissue lysates, Lane 6: rat testis tissue lysates, Lane 7: mouse brain tissue lysates, Lane 8: mouse testis tissue lysates. After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-NFU1 antibody at 0.5 ug/ml overnight at 4oC, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal was developed using an ECL Plus Western Blotting Substrate. NFU1 (~27 kDa predicted) was detected at ~33-35 kDa, occasionally as a faint doublet, consistent with incomplete mitochondrial processing and oxidative modification described for endogenous NFU1.



Flow Cytometry analysis of cells using anti-NFU1 antibody. Overlay histogram showing cells stained with (Blue line). To facilitate intracellular staining, cells were fixed with 4% paraformaldehyde and permeabilized with permeabilization buffer. The cells were blocked with 10% normal goat serum. And then incubated with rabbit anti-NFU1 antibody (1 ug/million cells) for 30 min at 20oC. DyLight 488 conjugated goat anti-rabbit IgG (5-10 ug/million cells) was used as secondary antibody for 30 minutes at 20oC. Isotype control antibody (Green line) was rabbit IgG (1 ug/million cells) used under the same conditions. Unlabelled sample without incubation with primary antibody and secondary antibody (Red line) was used as a blank control.

Description

The NFU1 antibody targets Iron-sulfur cluster scaffold protein NFU1, a mitochondrial protein encoded by the NFU1 gene that functions in iron-sulfur (Fe-S) cluster assembly. Iron-sulfur cluster scaffold protein NFU1 is required for the maturation of a subset of mitochondrial Fe-S enzymes involved in oxidative phosphorylation, lipoic acid synthesis, and redox regulation. The NFU1 antibody provides researchers with a vital tool for studying mitochondrial metabolism, protein biogenesis, and disorders related to Fe-S cluster deficiency.

Iron-sulfur cluster scaffold protein NFU1 acts downstream of the core Fe-S assembly machinery (ISC system) and transfers preassembled clusters to specific target proteins, including lipoic acid synthetase and succinate dehydrogenase. It contains a conserved C-terminal cysteine-rich domain that binds transient Fe-S clusters before delivery to recipient apoproteins. The NFU1 antibody enables localization and expression analysis, showing strong mitochondrial matrix staining consistent with its chaperone-like function in cluster transfer.

Mutations in the NFU1 gene cause Multiple Mitochondrial Dysfunction Syndrome 1 (MMDS1), a severe autosomal recessive disorder characterized by infantile encephalopathy, lactic acidosis, and respiratory-chain deficiency. The NFU1 antibody supports investigations into the molecular mechanisms of MMDS1 by allowing detection of protein loss or misfolding in patient cells. Loss of functional NFU1 impairs Fe-S enzyme assembly, reducing activity of complexes II and lipoic acidÃ¯Â¿Â½dependent dehydrogenases, ultimately compromising cellular energy metabolism.

Beyond Fe-S cluster assembly, Iron-sulfur cluster scaffold protein NFU1 contributes to the maintenance of redox balance and the regulation of reactive oxygen species. The NFU1 antibody supports quantitative studies in models of oxidative stress, aging, and mitochondrial dysfunction. Reduced NFU1 expression has been associated with altered mitochondrial respiration and metabolic imbalance in cancer and neurodegeneration.

The NFU1 antibody performs effectively in western blotting, immunofluorescence, and immunohistochemistry, producing strong mitochondrial staining. NSJ Bioreagents provides this antibody with validated specificity and reproducibility for use in mitochondrial biology, metabolic, and biochemical research. By enabling accurate detection of Iron-sulfur cluster

scaffold protein NFU1, the NFU1 antibody supports studies into mitochondrial Fe-S cluster assembly, redox regulation, and the molecular basis of metabolic disorders.

Application Notes

Optimal dilution of the NFU1 antibody should be determined by the researcher.

Immunogen

E.coli-derived human NFU1 recombinant protein (Position: Q42-P254) was used as the immunogen for the NFU1 antibody.

Storage

After reconstitution, the NFU1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.