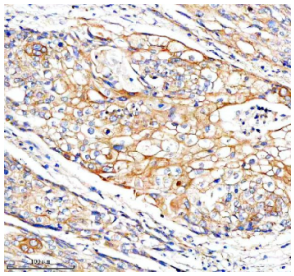
FUNDC1 Antibody / FUN14 domain-containing protein 1 (FY12846)

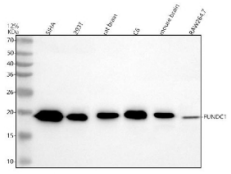
Catalog No.	Formulation	Size
FY12846	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

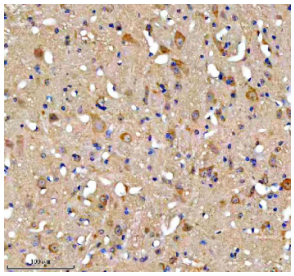
Availability	1-2 days
Species Reactivity	Human, Mouse, Rat
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	Q8IVP5
Localization	Cytoplasm
Applications	Western Blot : 0.25-0.5ug/ml Immunohistochemistry : 2-5ug/ml Flow Cytometry : 1-3ug/million cells
Limitations	This FUNDC1 antibody is available for research use only.



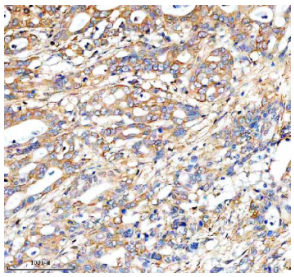
Immunohistochemical staining of FUNDC1 using anti-FUNDC1 antibody. FUNDC1 was detected in a paraffin-embedded section of human cervical cancer tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2 ug/ml rabbit anti-FUNDC1 antibody overnight at 4oC. Peroxidase Conjugated Goat Anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37oC. The tissue section was developed using an HRP secondary and DAB substrate.



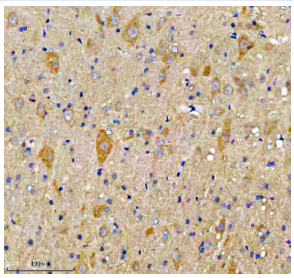
Western blot analysis of FUNDC1 using anti-FUNDC1 antibody. Electrophoresis was performed on a 12% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 1: human SiHa whole cell lysates, Lane 2: human 293T whole cell lysates, Lane 3: rat brain tissue lysates, Lane 4: rat C6 whole cell lysates, Lane 5: mouse brain tissue lysates, Lane 6: mouse RAW264.7 whole cell 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-FUNDC1 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. A specific band was detected for FUNDC1 at approximately 17 kDa. The expected molecular weight of FUNDC1 is ~17 kDa.



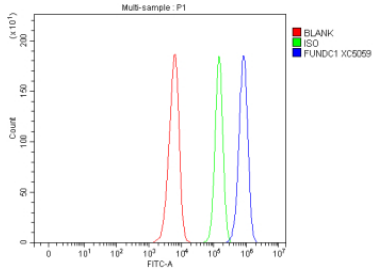
Immunohistochemical staining of FUNDC1 using anti-FUNDC1 antibody. FUNDC1 was detected in a paraffin-embedded section of mouse midbrain tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2 ug/ml rabbit anti-FUNDC1 antibody overnight at 4oC. Peroxidase Conjugated Goat Anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37oC. The tissue section was developed using an HRP secondary and DAB substrate.



Immunohistochemical staining of FUNDC1 using anti-FUNDC1 antibody. FUNDC1 was detected in a paraffin-embedded section of human pancreas cancer tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2 ug/ml rabbit anti-FUNDC1 antibody overnight at 4oC. Peroxidase Conjugated Goat Anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37oC. The tissue section was developed using an HRP secondary and DAB substrate.



Immunohistochemical staining of FUNDC1 using anti-FUNDC1 antibody. FUNDC1 was detected in a paraffin-embedded section of rat midbrain tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2 ug/ml rabbit anti-FUNDC1 antibody overnight at 4oC. Peroxidase Conjugated Goat Anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37oC. The tissue section was developed using an HRP secondary and DAB substrate.



Flow Cytometry analysis of SiHa cells using anti-FUNDC1 antibody. Overlay histogram showing SiHa 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-FUNDC1 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

FUNDC1 antibody detects FUN14 domain-containing protein 1, a mitochondrial outer membrane protein that regulates mitophagy and mitochondrial quality control. Encoded by the FUNDC1 gene on chromosome Xq26.1, this protein serves

as a receptor for hypoxia-induced mitophagy, linking damaged or depolarized mitochondria to the autophagic machinery. FUNDC1 interacts with LC3 through its LC3-interacting region (LIR) motif, facilitating selective removal of dysfunctional mitochondria during cellular stress.

Structurally, FUNDC1 contains three transmembrane helices that anchor it to the mitochondrial outer membrane, with its N-terminal domain exposed to the cytosol for binding autophagy-related proteins. Under normoxic conditions, FUNDC1 is phosphorylated at Tyr18 and Ser13, suppressing its interaction with LC3. During hypoxia or mitochondrial depolarization, phosphatases such as PGAM5 dephosphorylate these residues, enhancing its affinity for LC3 and triggering mitophagy. This dynamic post-translational regulation ensures precise control of mitochondrial turnover.

The FUNDC1 antibody is widely used in mitochondrial biology, autophagy, and metabolic research to study mitophagy signaling, organelle homeostasis, and cellular stress adaptation. Western blot analysis detects a 16 kilodalton band corresponding to FUNDC1, while immunofluorescence shows punctate staining along mitochondrial networks. This antibody enables researchers to monitor mitochondrial dynamics and degradation under conditions such as hypoxia, oxidative stress, or metabolic reprogramming.

FUNDC1-mediated mitophagy is essential for maintaining energy balance and preventing accumulation of damaged mitochondria that could release pro-apoptotic or inflammatory signals. Dysregulation of FUNDC1 contributes to diseases such as cardiac ischemia, neurodegeneration, and cancer, where impaired mitophagy affects cell survival and metabolic fitness. The FUNDC1 antibody provides a sensitive reagent for assessing mitophagic flux and mitochondrial remodeling. NSJ Bioreagents validates this antibody for its applications, ensuring reliable detection for studies on mitochondrial quality control and autophagic signaling.

Application Notes

Optimal dilution of the FUNDC1 antibody should be determined by the researcher.

Immunogen

A synthetic peptide corresponding to a sequence in the middle region of human FUNDC1 was used as the immunogen for the FUNDC1 antibody.

Storage

After reconstitution, the FUNDC1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.