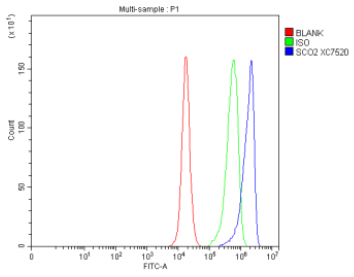
SCO2 Antibody / Copper chaperone SCO2 (FY13295)

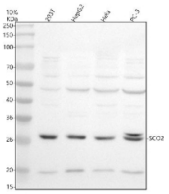
Catalog No.	Formulation	Size
FY13295	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

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	O43819
Applications	Western Blot : 0.25-0.5ug/ml Flow Cytometry : 1-3ug/million cells ELISA : 0.1-0.5ug/ml
Limitations	This SCO2 antibody is available for research use only.



Flow Cytometry analysis of human PC-3 cells using anti-SCO2 antibody. Overlay histogram showing PC-3 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-SCO2 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.



Western blot analysis of SCO2 using anti-SCO2 antibody. Electrophoresis was performed on a 10% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 1: human 293T whole cell lysates, Lane 2: human HepG2 whole cell lysates, Lane 3: human Hela whole cell lysates, Lane 4: human PC-3 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-SCO2 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 single band is detected at an approximately 27 kDa in all samples, consistent with the mature form of SCO2 following removal of its N terminal mitochondrial targeting sequence, which reduces the apparent molecular weight below the predicted ~30 kDa mass of the precursor.

Description

SCO2 antibody detects the Copper chaperone SCO2, a mitochondrial inner membrane protein required for the assembly of cytochrome c oxidase (complex IV) of the respiratory chain. The SCO2 gene encodes a metallochaperone that facilitates copper delivery to the COX2 subunit of cytochrome c oxidase, ensuring proper enzyme maturation and electron transport. SCO2 plays an essential role in aerobic energy metabolism, and its deficiency leads to mitochondrial dysfunction and severe metabolic disorders.

Located on chromosome 22q13.33, SCO2 (Synthesis of Cytochrome c Oxidase 2) is one of two homologous human SCO genes, the other being SCO1. Both are nuclear-encoded but localized to mitochondria, where they coordinate copper homeostasis. SCO2 binds copper ions via conserved cysteine and histidine residues and transfers them to cytochrome oxidase subunits through direct protein-protein interactions. Mutations in SCO2 disrupt this process and result in cytochrome c oxidase deficiency, leading to diseases such as fatal infantile cardioencephalomyopathy and Leigh-like syndrome.

SCO2 expression is regulated by hypoxia and cellular copper status. Under low oxygen conditions, transcription factor HIF-1 may influence SCO2 expression to modulate oxidative phosphorylation efficiency. The protein is also involved in maintaining redox balance and preventing the accumulation of reactive oxygen species (ROS) within mitochondria. Beyond its role in energy production, SCO2 contributes to cellular copper distribution and may participate in signaling pathways that coordinate mitochondrial biogenesis.

Immunohistochemical analysis using SCO2 antibody demonstrates mitochondrial localization in heart, skeletal muscle, and brain tissues, consistent with its role in energy metabolism. The antibody serves as a key tool for studying mitochondrial function, copper metabolism, and respiratory chain biogenesis. SCO2 antibody from NSJ Bioreagents provides reliable detection of this essential metallochaperone in biochemical and cell biology research applications.

Application Notes

Optimal dilution of the SCO2 antibody should be determined by the researcher.

Immunogen

E.coli-derived human SCO2 recombinant protein (Position: Q29-S266) was used as the immunogen for the SCO2 antibody.

Storage

After reconstitution, the SCO2 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.