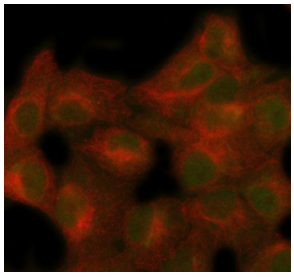
SECISBP2 Antibody / Selenocysteine insertion sequence-binding protein 2 (FY13363)

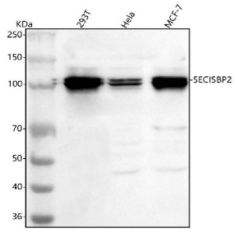
Catalog No.	Formulation	Size
FY13363	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

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	Q96T21
Localization	Nucleus, Miochondria
Applications	Western Blot : 0.25-0.5ug/ml Immunocytochemistry : 5ug/ml Immunofluorescence : 5ug/ml ELISA : 0.1-0.5ug/ml
Limitations	This SECISBP2 antibody is available for research use only.



Immunofluorescent staining of SECISBP2 using anti-SECISBP2 antibody (green) and anti-Beta Tubulin antibody (red). SECISBP2 was detected in immunocytochemical section of human A549 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-SECISBP2 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. Visualize using a fluorescence microscope and filter sets appropriate for the label used.



Western blot analysis of SECISBP2 using anti-SECISBP2 antibody. Lane 1: human 293T whole cell lysates, Lane 2: human Hela whole cell lysates, Lane 3: human MCF-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-SECISBP2 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 enhanced chemiluminescent. A dominant band at ~100 kDa is observed, consistent with the known upward size shift of SECISBP2 relative to its predicted 95 kDa mass. A second closely spaced band is present in all samples, likely representing phosphorylated or other post-translationally modified isoforms of SECISBP2. The banding pattern agrees with published reports describing SECISBP2 migration at ~100-110 kDa with multiple modified species.

Description

SECISBP2 antibody detects Selenocysteine insertion sequence-binding protein 2, a cytoplasmic RNA-binding protein encoded by the SECISBP2 gene located on chromosome 9q22.2. SECISBP2 is essential for the synthesis of selenoproteins, a unique class of proteins that incorporate the amino acid selenocysteine at UGA codons during translation. The protein binds specifically to selenocysteine insertion sequence (SECIS) elements in the 3' untranslated regions (3' UTRs) of selenoprotein mRNAs, promoting selenocysteine incorporation by interacting with specialized translation factors. SECISBP2 is widely expressed, with high levels in liver, thyroid, and kidney where selenoprotein synthesis is most active.

Structurally, SECISBP2 contains RNA recognition motifs and a lysine-rich domain essential for binding SECIS elements. It forms part of a ribonucleoprotein complex with eukaryotic elongation factor EEFSEC and selenocysteine-specific tRNA (tRNA-Sec), ensuring accurate decoding of UGA as selenocysteine instead of a stop signal. SECISBP2 belongs to the SECIS-binding protein family, which includes SECISBP2L, a paralog with partially overlapping function. Co-localization studies show SECISBP2 distributed in cytoplasmic foci associated with ribosomes and endoplasmic reticulum-bound polysomes, indicating its role in co-translational selenoprotein synthesis.

Functionally, SECISBP2 regulates the expression of numerous selenoproteins involved in antioxidant defense, redox regulation, and thyroid hormone metabolism. These include glutathione peroxidases, thioredoxin reductases, and deiodinases. By controlling selenocysteine incorporation efficiency, SECISBP2 influences cellular responses to oxidative stress and selenium availability. During development, SECISBP2 expression supports organogenesis and metabolic maturation by maintaining proper selenoprotein production.

Mutations in SECISBP2 cause a multisystem disorder known as selenoprotein deficiency syndrome, characterized by impaired thyroid hormone activation, low plasma selenium levels, and muscle weakness. Reduced SECISBP2 function decreases synthesis of key antioxidant enzymes, leading to increased oxidative damage. Conversely, overexpression can enhance cellular resistance to oxidative stress by upregulating selenoprotein synthesis. Pathway associations include selenoamino acid metabolism, translational control, and oxidative stress response. Known binding partners include EEFSEC, SEPSECS, and tRNA-SEC, forming the machinery required for selenocysteine translation.

The SECISBP2 antibody from NSJ Bioreagents is an excellent reagent for studying selenium biology, redox regulation, and translational control of selenoproteins.

Application Notes

Optimal dilution of the SECISBP2 antibody should be determined by the researcher.

Immunogen

E.coli-derived human SECISBP2 recombinant protein (Position: E12-L854) was used as the immunogen for the SECISBP2 antibody.

Storage

After reconstitution, the SECISBP2 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.