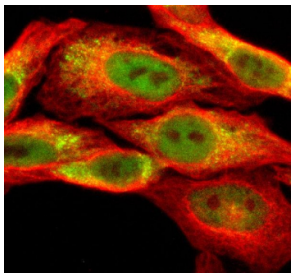
SESN3 Antibody / Sestrin 3 (FY12378)

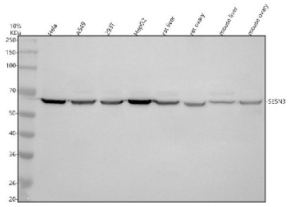
Catalog No.	Formulation	Size
FY12378	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

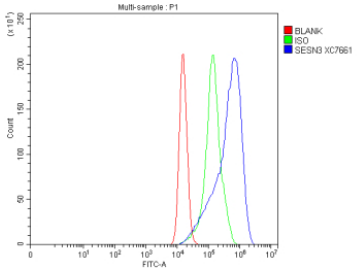
Availability	1-2 days
Species Reactivity	Human, Mouse, Rat
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	P58005
Applications	Western Blot: 0.25-0.5ug/ml Immunocytochemistry/Immunofluorescence: 5ug/ml Flow cytometry: 1-3ug/million cells ELISA: 0.1-0.5ug/ml
Limitations	This SESN3 antibody is available for research use only.



Immunofluorescent staining of SESN3 using anti-SESN3 antibody (green) and anti-Beta Tubulin antibody (red). SESN3 was detected in an immunocytochemical section of Hela 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-SESN3 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 SESN3 using anti-SESN3 antibody. Electrophoresis was performed on a 10% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 1: human Hela whole cell lysates, Lane 2: human whole cell lysates, Lane 3: human 293T whole cell lysates, Lane 4: human HepG2 whole cell lysates, Lane 5: rat liver tissue lysates, Lane 6: rat ovary tissue lysates, Lane 7: mouse liver tissue lysates, Lane 8: mouse ovary 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-SESN3 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. SESN3 (~57 kDa predicted) was detected at ~65 kDa, consistent with the phosphorylated and oxidized forms of Sestrin-3 reported in previous studies.



Flow Cytometry analysis of cells using anti-SESN3 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-SESN3 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 SESN3 antibody targets Sestrin-3, a stress-responsive protein encoded by the SESN3 gene that acts as a key regulator of metabolism, oxidative stress, and autophagy. Sestrin-3 belongs to the sestrin family of highly conserved proteins that modulate AMPK and mTORC1 signaling in response to cellular stress and nutrient availability. By integrating metabolic and redox cues, Sestrin-3 protects cells from oxidative damage and supports energy balance. The SESN3 antibody provides a high-specificity reagent for studying these protective pathways and their dysregulation in metabolic and age-related diseases.

Sestrin-3 functions as both an antioxidant and a signaling adaptor. It promotes activation of AMP-activated protein kinase (AMPK) and inhibits mechanistic target of rapamycin complex 1 (mTORC1), thereby promoting autophagy and metabolic homeostasis under nutrient stress. The SESN3 antibody enables detection of this adaptive protein across a range of tissues, including liver, muscle, adipose, and brain, where it contributes to maintaining glucose and lipid metabolism. Through these pathways, Sestrin-3 serves as a critical mediator of cellular recovery following oxidative or genotoxic stress.

In metabolic research, Sestrin-3 has gained prominence as a regulator of insulin sensitivity and lipid catabolism. Elevated SESN3 expression improves glucose tolerance and suppresses lipogenesis through AMPK activation. Conversely, its loss results in impaired energy metabolism and increased susceptibility to metabolic syndrome. The SESN3 antibody supports studies of these mechanisms by quantifying protein levels in metabolic tissues and cell lines subjected to nutrient deprivation or stress stimuli.

Sestrin-3 also contributes to antioxidant defense by reducing reactive oxygen species (ROS) accumulation and supporting regeneration of peroxiredoxins. These functions are critical in preventing oxidative stressÃ¯Â¿Â½induced damage in aging, cardiovascular disease, and neurodegeneration. The SESN3 antibody allows detailed analysis of these processes and helps map signaling interactions with FOXO and p53 transcription factors that drive stress-response gene expression. Dysregulation of Sestrin-3 has been implicated in tumor progression, where its expression may modulate cell survival under metabolic stress conditions common in cancer microenvironments.

The SESN3 antibody performs effectively in western blotting, immunohistochemistry, and immunofluorescence. It provides clear cytoplasmic staining consistent with the localization of this stress-inducible regulator. NSJ Bioreagents offers the SESN3 antibody as a validated reagent for reproducible detection across research platforms. By supporting detailed exploration of Sestrin-3 function in redox balance, energy metabolism, and autophagy, the SESN3 antibody advances understanding of cellular adaptation mechanisms that maintain metabolic health and longevity.

Application Notes

Optimal dilution of the SESN3 antibody should be determined by the researcher.

Immunogen

E.coli-derived human SESN3 recombinant protein (Position: N13-H345) was used as the immunogen for the SESN3 antibody.

Storage

After reconstitution, the SESN3 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

Copyright © NSJ Bioreagents. All rights reserved.