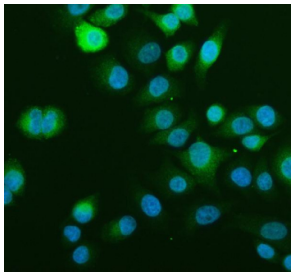
SCD1 Antibody / Stearoyl-CoA desaturase (FY12521)

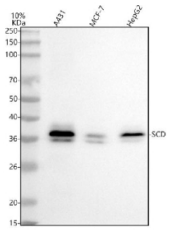
Catalog No.	Formulation	Size
FY12521	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

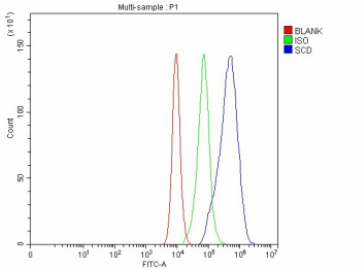
Availability	1-2 days
Species Reactivity	Human
Format	Lyophilized
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	O00767
Localization	ER
Applications	ELISA : 0.1-0.5ug/ml Flow Cytometry : 1-3ug/million cells Immunoprecipitation : 2-4ug/500ug of lysate Immunofluorescence : 5ug/ml Immunocytochemistry : 5ug/ml Western Blot : 0.25-0.5ug/ml
Limitations	This SCD1 antibody is available for research use only.



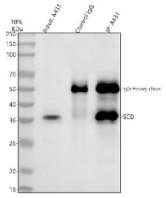
Immunofluorescent staining of SCD using anti-SCD1 antibody (green). SCD1 was detected in an immunocytochemical section of cells. Enzyme antigen retrieval was performed using IHC enzyme antigen retrieval reagent for 15 mins. The cells were blocked with 10% goat serum. And then incubated with 5 ug/ml rabbit anti-SCD1 antibody overnight at 4oC. DyLight 488 Conjugated Goat Anti-Rabbit IgG was 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 SCD1 using anti-SCD1 antibody. Lane 1: human whole cell lysates, Lane 2: human MCF-7 whole cell lysates, Lane 3: human HepG2 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-SCD 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. SCD1 (~41 kDa predicted) was detected as a 36-38 kDa doublet, consistent with the known anomalous migration and phosphorylation-dependent mobility of this endoplasmic reticulum membrane enzyme.



Flow Cytometry analysis of Caco-2 cells using anti-SCD1 antibody. Overlay histogram showing Caco-2 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-SCD1 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.



Immunoprecipitating SCD1 in whole cell lysate. Western blot analysis of SCD1 using anti-SCD antibody. Lane 1: whole cell lysates (30ug) Lane 2: Rabbit control IgG instead of anti-SCD antibody in whole cell lysate. Lane 3: anti-SCD1 antibody (2ug) + whole cell lysate (500ug) After electrophoresis, proteins were transferred to a membrane. Then the membrane was incubated with rabbit anti-SCD1 antibody at a dilution of 0.5 ug/ml and probed with a goat anti-rabbit IgG-HRP secondary antibody. The signal is developed using ECL Plus Western Blotting Substrate. SCD1 (~41 kDa predicted) was detected as a 36â€“38 kDa doublet, consistent with the known anomalous migration and phosphorylation-dependent mobility of this endoplasmic reticulum membrane enzyme.

Description

SCD1 antibody detects Stearoyl-CoA desaturase, an endoplasmic reticulum enzyme that catalyzes the conversion of saturated fatty acids into monounsaturated fatty acids, primarily oleate and palmitoleate. This reaction is essential for maintaining membrane fluidity, lipid signaling, and triglyceride synthesis. The SCD1 antibody is widely used in metabolism and lipid biology research to explore fatty acid desaturation and metabolic regulation.

SCD1 is encoded by the SCD gene located on human chromosome 10q24.31. The enzyme is approximately 41 kilodaltons and contains four transmembrane domains that anchor it to the ER membrane, where it introduces a cis-double bond between the ninth and tenth carbon atoms of saturated fatty acyl-CoAs. The desaturation reaction requires oxygen, NADH, and cytochrome b5, forming the core step in the synthesis of monounsaturated fatty acids.

The SCD1 antibody typically detects a 36-42 kilodalton band by western blot and reveals reticular ER staining in immunofluorescence microscopy. SCD1 plays a vital role in lipid homeostasis by controlling the ratio of saturated to unsaturated fatty acids, influencing membrane composition, lipoprotein secretion, and energy storage.

Upregulation of SCD1 promotes lipogenesis and is associated with obesity, insulin resistance, and hepatic steatosis. Conversely, inhibition or genetic deletion of SCD1 enhances fatty acid oxidation and protects against metabolic disease. SCD1 expression is regulated by sterol regulatory element-binding protein 1c (SREBP1c) and peroxisome proliferator-activated receptors (PPARs), linking it to dietary and hormonal control of lipid metabolism.

Beyond metabolism, SCD1 influences inflammation, cancer cell proliferation, and stem cell maintenance. High SCD1 expression correlates with poor prognosis in several cancers due to its role in sustaining membrane synthesis and redox balance. NSJ Bioreagents provides a validated SCD1 antibody optimized for its applications, supporting research into fatty acid metabolism, energy regulation, and disease mechanisms.

Application Notes

Optimal dilution of the SCD1 antibody should be determined by the researcher.

Immunogen

E.coli-derived human SCD recombinant protein (Position: R26-S358) was used as the immunogen for the SCD1 antibody.

Storage

After reconstitution, the SCD1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.