SANTA CRUZ BIOTECHNOLOGY, INC.

NFS1 (B-7): sc-365308

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

NFS1 (nitrogen fixation 1), also known as NIFS or IscS (cysteine desulfurase), is a member of the class V pyridoxal-phosphate-dependent aminotransferase family. It localizes to the cytoplasm or mitochondrion depending on which form is generated based on cytosolic pH. Highest expression levels of NFS1 are found in heart and skeletal muscle. Lower levels of expression are also found in liver, brain and pancreas. NFS1 is responsible for catalyzing the removal of sulfur from cysteine to form alanine, thereby supplying the inorganic sulfur for iron-sulfur (Fe-S) clusters. Fe-S clusters function as essential cofactors in a wide variety of events, including facilitation of electron transfer processes in oxidative phosphorylation, catalysis of enzymatic reactions in aconitase and dehydratases and maintenance of structural integrity in the DNA repair enzyme endonuclease III.

CHROMOSOMAL LOCATION

Genetic locus: NFS1 (human) mapping to 20q11.22; Nfs1 (mouse) mapping to 2 H1.

SOURCE

NFS1 (B-7) is a mouse monoclonal antibody raised against amino acids 288-457 mapping at the C-terminus of NFS1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

NFS1 (B-7) is available conjugated to agarose (sc-365308 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-365308 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365308 PE), fluorescein (sc-365308 FITC), Alexa Fluor® 488 (sc-365308 AF488), Alexa Fluor® 546 (sc-365308 AF546), Alexa Fluor® 594 (sc-365308 AF594) or Alexa Fluor® 647 (sc-365308 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-365308 AF680) or Alexa Fluor® 790 (sc-365308 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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APPLICATIONS

NFS1 (B-7) is recommended for detection of NFS1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for NFS1 siRNA (h): sc-75911, NFS1 siRNA (m): sc-149946, NFS1 shRNA Plasmid (h): sc-75911-SH, NFS1 shRNA Plasmid (m): sc-149946-SH, NFS1 shRNA (h) Lentiviral Particles: sc-75911-V and NFS1 shRNA (m) Lentiviral Particles: sc-149946-V.

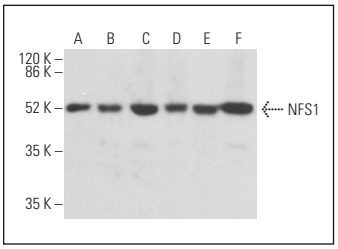
Molecular Weight of NFS1: 50 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, Hep G2 cell lysate: sc-2227 or Caco-2 cell lysate: sc-2262.

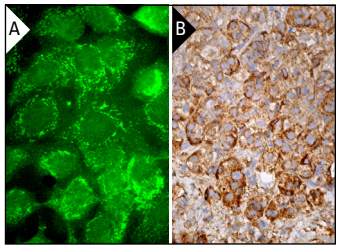
STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

DATA



NFS1 (B-7): sc-365308. Western blot analysis of NFS1 expression in Hep G2 (**A**), NTERA-2 cl.D1 (**B**), HEK293 (**C**), HeLa (**D**), A549 (**E**) and Caco-2 (**F**) whole cell lysates. Detection reagent used: m-IgGκ BP-HRP: sc-516102.



NFS1 (B-7): sc-365308. Immunofluorescence staining of formalin-fixed A-431 cells showing mitochondrial, cytoplasmic and nuclear localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human adrenal gland tissue showing cytoplasmic staining of glandular cells (**B**).

SELECT PRODUCT CITATIONS

1. Alvarez, S.W., et al. 2017. NFS1 undergoes positive selection in lung tumours and protects cells from ferroptosis. Nature 551: 639-643.
2. Paul, B.T., et al. 2019. Sideroflexin 4 affects Fe-S cluster biogenesis, iron metabolism, mitochondrial respiration and heme biosynthetic enzymes. Sci. Rep. 9: 19634.
3. Naseri, N.N., et al. 2020. Aggregation of mutant cysteine string protein-α via Fe-S cluster binding is mitigated by iron chelators. Nat. Struct. Mol. Biol. 27: 192-201.
4. Ward, N.P., et al. 2020. Nicotinamide nucleotide transhydrogenase regulates mitochondrial metabolism in NSCLC through maintenance of Fe-S protein function. J. Exp. Med. 217: e20191689.
5. Fil, D., et al. 2020. Mitochondrial damage and senescence phenotype of cells derived from a novel frataxin G127V point mutation mouse model of Friedreich's ataxia. Dis. Model. Mech. 13: dmm045229.
6. Sviderskiy, V.O., et al. 2020. Hyperactive CDK2 activity in basal-like breast cancer imposes a genome integrity liability that can be exploited by targeting DNA polymerase ε. Mol. Cell 80: 682-698.e7.
7. Terzi, E.M., et al. 2021. Iron-sulfur cluster deficiency can be sensed by IRP2 and regulates iron homeostasis and sensitivity to ferroptosis independent of IRP1 and FBXL5. Sci. Adv. 7: eabg4302.
8. Chafe, S.C., et al. 2021. Genome-wide synthetic lethal screen unveils novel CAIX-NFS1/xCT axis as a targetable vulnerability in hypoxic solid tumors. Sci. Adv. 7: eabj0364.
9. Wang, Y., et al. 2021. SLC25A39 is necessary for mitochondrial glutathione import in mammalian cells. Nature 599: 136-140.

RESEARCH USE

For research use only, not for use in diagnostic procedures.