

NFS1 (2635E1a): sc-81107

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.

REFERENCES

- Ouzounis, C. and Sander, C. 1993. Homology of the NIFS family of proteins to a new class of pyridoxal phosphate-dependent enzymes. *FEBS Lett.* 322: 159-164.
- Beinert, H. and Holm R.H. 1997 Iron-sulfur clusters: nature's modular, multipurpose structure. *Science* 277: 653-659.
- Land, T. and Rouault, T.A. 1999. Targeting of a human iron-sulfur cluster assembly enzyme, NIFS, to different subcellular compartments is regulated through alternative AUG utilization. *Mol. Cell* 2: 807-815.
- Tong, W.H. and Rouault, T. 2000. Distinct iron-sulfur cluster assembly complexes exist in the cytosol and mitochondria of human cells. *EMBO J.* 19: 5692-5700.
- Olson, J.W., et al. 2001. Characterization of the NIFU and NIFS Fe-S cluster formation proteins essential for viability in *Helicobacter pylori*. *Biochemistry* 39: 16213-16219.
- Tong, W.H., et al. 2003. Subcellular compartmentalization of human NFS1, an iron-sulfur cluster scaffold protein, and its ability to assemble a [4Fe-4S] cluster. *Proc. Natl. Acad. Sci. USA* 100: 9762-9767.
- Li, K., et al. 2006. Roles of the mammalian cytosolic cysteine desulfurase, ISCS, and scaffold protein, ISCU, in iron-sulfur cluster assembly. *J. Biol. Chem.* 281: 12344-12351.
- Online Mendelian Inheritance in Man, OMIM™. 2008. Johns Hopkins University, Baltimore, MD. MIM Number: 603485. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>

CHROMOSOMAL LOCATION

Genetic locus: NFS1 (human) mapping to 20q11.22.

SOURCE

NFS1 (2635E1a) is a mouse monoclonal antibody raised against a recombinant protein corresponding to a region near the N-terminus of NFS1 of human origin.

RESEARCH USE

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

PRODUCT

Each vial contains 100 µg IgG₁ in 1.0 ml of PBS with < 0.1% sodium azide and 1.0% stabilizer protein.

APPLICATIONS

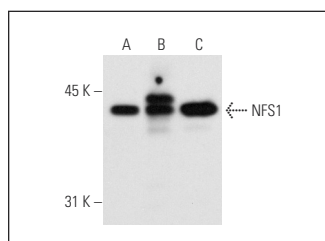
NFS1 (2635E1a) is recommended for detection of NFS1 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

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

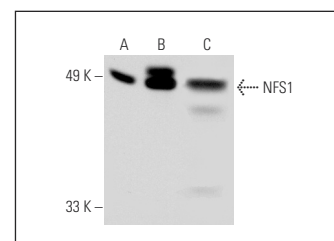
Molecular Weight of NFS1: 50 kDa.

Positive Controls: NFS1 (h2): 293T Lysate: sc-117073, Hep G2 cell lysate: sc-2227 or SK-N-MC cell lysate: sc-2237.

DATA



NFS1 (2635E1a): sc-81107. Western blot analysis of NFS1 expression in non-transfected 293T: sc-117752 (A), human NFS1 transfected 293T: sc-117073 (B) and SK-N-MC (C) whole cell lysates.



NFS1 (2635E1a): sc-81107. Western blot analysis of NFS1 expression in non-transfected 293T: sc-117752 (A), human NFS1 transfected 293T: sc-117073 (B) and Hep G2 (C) whole cell lysates.

SELECT PRODUCT CITATIONS

- Kim, K.S., et al. 2018. Cytosolic HSC 20 integrates *de novo* iron-sulfur cluster biogenesis with the Cia1-mediated transfer to recipients. *Hum. Mol. Genet.* 27: 837-852.

STORAGE

For immediate and continuous use, store at 4° C for up to one month. For sporadic use, freeze in working aliquots in order to avoid repeated freeze/thaw cycles. If turbidity is evident upon prolonged storage, clarify solution by centrifugation.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.