

# NFS1 (L-20): sc-85786

## 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., Agar, J.N., Johnson, M.K. and Maier, R.J. 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., Jameson, G.N., Huynh, B.H. and Rouault, T.A. 2003. Subcellular compartmentalization of human NIFU, 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., Tong, W.H., Hughes, R.M. and Rouault, T.A. 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; Nfs1 (mouse) mapping to 2 H1.

## SOURCE

NFS1 (L-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of NFS1 of human origin.

## PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-85786 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

NFS1 (L-20) is recommended for detection of NFS1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

NFS1 (L-20) is also recommended for detection of NFS1 in additional species, including equine, canine, bovine, porcine and avian.

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 SK-N-MC cell lysate: sc-2237.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## STORAGE

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

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.