SANTA CRUZ BIOTECHNOLOGY, INC.

SFXN1 (S-12): sc-160797

BACKGROUND

The sideroflexin (SFXN) family is comprised of SFXN1, SFXN2, SFXN3, SFXN4 and SFXN5. SFXN1, also designated tricarboxylate carrier protein TCC, is the most highly characterized family member. The ubiquitously expressed SFXN1 protein resides as an integral protein of the mitochondrial inner membrane. It functions as an essential component of the shuttle system that transports mitochondrial acetyl-CoA into the cytosol, where lipogenesis occurs. The SFXN1 gene is mutated in flexed-tail (f/f) mice, which display axial skeletal abnormalities and a transient embryonic and neonatal anemia characterized by pathologic intramitochondiral iron deposits in erythrocytes. Therefore, SFXN1 is also thought to facilitate the transport of a component required for iron utilization into mitochondria. All SFXN family members show expression in pancreatic islet cells. SFXN5 displays a citrate transport activity and is primarily expressed in brain.

REFERENCES

1. Fleming, M.D., Campagna, D.R., Haslett, J.N., Trenor, C.C. and Andrews, N.C. 2001. A mutation in a mitochondrial transmembrane protein is responsible for the pleiotropic hematological and skeletal phenotype of flexed-tail (f/f) mice. Genes Dev. 15: 652-657.
2. Miyake, S., Yamashita, T., Taniguchi, M., Tamatani, M., Sato, K. and Tohyama, M. 2002. Identification and characterization of a novel mitochondrial tricarboxylate carrier. Biochem. Biophys. Res. Commun. 295: 463-468.
3. Miyake, S., Yamashita, T., Taniguchi, M., Tamatani, M., Sato, K., Kawai, Y., Senba, E., Mitsuda, N., Hori, O., Yamaguchi, A. and Tohyama, M. 2002. Expression of mitochondrial tricarboxylate carrier TCC mRNA and protein in the rat brain. Brain Res. Mol. Brain Res. 100: 67-73.
4. Lockhart, P.J., Holtom, B., Lincoln, S., Hussey, J., Zimprich, A., Gasser, T., Wszolek, Z.K., Hardy, J. and Farrer, M.J. 2002. The human sideroflexin 5 (SFXN5) gene: sequence, expression analysis and exclusion as a candidate for PARK3. Gene 285: 229-237.
5. Zheng, H., Ji, C., Zou, X., Wu, M., Jin, Z., Yin, G., Li, J., Feng, C., Cheng, H., Gu, S., Xie, Y. and Mao, Y. 2003. Molecular cloning and characterization of a novel human putative transmembrane protein homologous to mouse sideroflexin associated with sideroblastic anemia. DNA Seq. 14: 369-373.
6. Siculella, L., Damiano, F., Sabetta, S. and Gnoni, G.V. 2004. n-6 PUFAs downregulate expression of the tricarboxylate carrier in rat liver by transcriptional and posttranscriptional mechanisms. J. Lipid Res. 45: 1333-1340.
7. Yoshikumi, Y., Mashima, H., Ueda, N., Ohno, H., Suzuki, J., Tanaka, S., Hayashi, M., Sekine, N., Ohnishi, H., Yasuda, H., Iiri, T., Omata, M., Fujita, T. and Kojima, I. 2005. Roles of CTPL/Sfxn3 and Sfxn family members in pancreatic islet. J. Cell. Biochem. 95: 1157-1168.
8. Siculella, L., Sabetta, S., Giudetti, A.M. and Gnoni, G.V. 2006. Hypothyroidism reduces tricarboxylate carrier activity and expression in rat liver mitochondria by reducing nuclear transcription rate and splicing efficiency. J. Biol. Chem. 281: 19072-19080.

CHROMOSOMAL LOCATION

Genetic locus: SFXN1 (human) mapping to 5q35.2; Sfxn1 (mouse) mapping to 13 B1.

SOURCE

SFXN1 (S-12) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of SFXN1 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-160797 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

SFXN1 (S-12) is recommended for detection of SFXN1 of mouse 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); non cross-reactive with other SFXN family members.

SFXN1 (S-12) is also recommended for detection of SFXN1 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for SFXN1 siRNA (h): sc-91814, SFXN1 siRNA (m): sc-153410, SFXN1 shRNA Plasmid (h): sc-91814-SH, SFXN1 shRNA Plasmid (m): sc-153410-SH, SFXN1 shRNA (h) Lentiviral Particles: sc-91814-V and SFXN1 shRNA (m) Lentiviral Particles: sc-153410-V.

Molecular Weight of SFXN1: 36 kDa.

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 or our catalog for detailed protocols and support products.