SANTA CRUZ BIOTECHNOLOGY, INC.

Mfn1 (H-65): sc-50330

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Mitofusin-1 (Mfn1) and mitofusin-2 (Mfn2) are homologs for the *Drosphila* protein fuzzy onion (Fzo). They are mitochondrial membrane proteins and are mediators of mitochondrial fusion. A GTPase domain is required for Mfn protein function but the molecular mechanisms of the GTPase-dependent reaction as well as the functional division of the two Mfn proteins are unknown. They are essential for embryonic development and may play a role in the pathobiology of obesity. Although the Mfn1 and Mfn2 genes are broadly expressed, they show different levels of expression in different tissues. Two Mfn1 transcripts are elevated in heart, while Mfn2 mRNA is abundantly expressed in heart and muscle tissue but present only at low levels in many other tissues. Mfn1 localizes to mitochondria and participates in at least two different high molecular weight protein complexes in a GTP-dependent manner. Purified recombinant Mfn1 exhibited approximately eightfold higher GTPase activity than Mfn2.

REFERENCES

1. Santel, A., et al. 2001. Control of mitochondrial morphology by a human mitofusin. J. Cell Sci. 114: 867-874.
2. Rojo, M., et al. 2002. Membrane topology and mitochondrial targeting of mitofusins, ubiquitous mammalian homologs of the transmembrane GTPase Fzo. J. Cell Sci. 115: 1663-1674.
3. Chen, H., et al. 2003. Mitofusins Mfn1 and Mfn2 coordinately regulate mitochondrial fusion and are essential for embryonic development. J. Cell Biol. 160: 189-200.
4. Bach, D., et al. 2003. Mitofusin-2 determines mitochondrial network architecture and mitochondrial metabolism. A novel regulatory mechanism altered in obesity. J. Biol. Chem. 278: 17190-17197.

CHROMOSOMAL LOCATION

Genetic locus: MFN1 (human) mapping to 3q26.33; Mfn1 (mouse) mapping to 3 A3.

SOURCE

Mfn1 (H-65) is a rabbit polyclonal antibody raised against amino acids 10-74 mapping within an N-terminal cytoplasmic domain of Mfn1 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.

STORAGE

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

PROTOCOLS

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

APPLICATIONS

Mfn1 (H-65) is recommended for detection of Mitofusin-1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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).

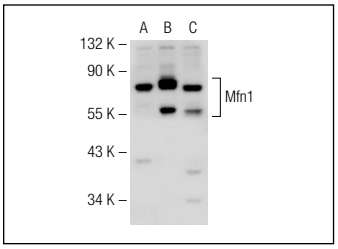
Mfn1 (H-65) is also recommended for detection of Mitofusin 1 in additional species, including equine, canine and bovine.

Suitable for use as control antibody for Mfn1 siRNA (h): sc-43927, Mfn1 siRNA (m): sc-60082, Mfn1 shRNA Plasmid (h): sc-43927-SH, Mfn1 shRNA Plasmid (m): sc-60082-SH, Mfn1 shRNA (h) Lentiviral Particles: sc-43927-V and Mfn1 shRNA (m) Lentiviral Particles: sc-60082-V.

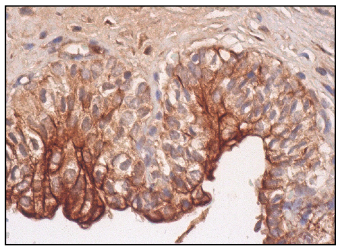
Molecular Weight of Mfn1: 86 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, Mfn1 (h2): 293T Lysate: sc-177545 or NIH/3T3 whole cell lysate: sc-2210.

DATA



Mfn1 (H-65): sc-50330. Western blot analysis of Mfn1 expression in non-transfected 293T: sc-117752 (**A**), human Mfn1 transfected 293T: sc-177545 (**B**) and HeLa (**C**) whole cell lysates.



Mfn1 (H-65): sc-50330. Immunoperoxidase staining of formalin fixed, paraffin-embedded human urinary bladder tissue showing cytoplasmic and membrane staining of urothelial cells.

SELECT PRODUCT CITATIONS

1. Cheng, Z., et al. 2009. Foxo1 integrates Insulin signaling with mitochondrial function in the liver. Nat. Med. 15: 1307-1311.
2. Farias, L.P., et al. 2010. *Schistosoma mansoni* stomatin like protein-2 is located in the tegument and induces partial protection against challenge infection. PLoS Negl. Trop. Dis. 4: e597.
3. Koltai, E., et al. 2012. Age-associated declines in mitochondrial biogenesis and protein quality control factors are minimized by exercise training. Am. J. Physiol. Regul. Integr. Comp. Physiol. 303: R127-R134.
4. Takamatsu, S., et al. 2013. Functional characterization of domains of IPS-1 using an inducible oligomerization system. PLoS ONE 8: e53578.
5. Hart, N., et al. 2013. Resveratrol enhances exercise training responses in rats selectively bred for high running performance. Food Chem. Toxicol. E-Published.

RESEARCH USE

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