

Mfn1 (S-19): sc-30363

BACKGROUND

Mitofusin 1 (Mfn1) and mitofusin 2 (Mfn2) are homologs for the *Drosophila* 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.
5. Santel, A., et al. 2003. Mitofusin-1 protein is a generally expressed mediator of mitochondrial fusion in mammalian cells. *J. Cell Sci.* 116: 2763-2774.
6. Ishihara, N., et al. 2004. Mitofusin 1 and 2 play distinct roles in mitochondrial fusion reactions via GTPase activity. *J. Cell Sci.* 117: 6535-6546.

CHROMOSOMAL LOCATION

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

SOURCE

Mfn1 (S-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region 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.

Blocking peptide available for competition studies, sc-30363 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

Mfn1 (S-19) 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Mfn1 siRNA (h): sc-43927, Mfn1 siRNA (m): sc-60082, Mfn1 siRNA (r): sc-270320, Mfn1 shRNA Plasmid (h): sc-43927-SH, Mfn1 shRNA Plasmid (m): sc-60082-SH, Mfn1 shRNA Plasmid (r): sc-270320-SH, Mfn1 shRNA (h) Lentiviral Particles: sc-43927-V, Mfn1 shRNA (m) Lentiviral Particles: sc-60082-V and Mfn1 shRNA (r) Lentiviral Particles: sc-270320-V.

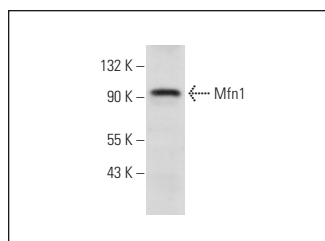
Molecular Weight of Mfn1: 86 kDa.

Positive Controls: mouse brain extract: sc-2253, HeLa whole cell lysate: sc-2200 or NIH/3T3 whole cell lysate: sc-2210.

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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) 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.

DATA



Mfn1 (S-19): sc-30363. Western blot analysis of Mfn1 expression in mouse brain tissue extract.

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.