SANTA CRUZ BIOTECHNOLOGY, INC.

Mfn2 (XX-1): sc-100560

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.

CHROMOSOMAL LOCATION

Genetic locus: MFN2 (human) mapping to 1p36.22; Mfn2 (mouse) mapping to 4 E2.

SOURCE

Mfn2 (XX-1) is a mouse monoclonal antibody raised against a C-terminus partial recombinant Mfn2 of human origin.

PRODUCT

Each vial contains 100 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Mfn2 (XX-1) is recommended for detection of Mitofusin 2 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).

Suitable for use as control antibody for Mfn2 siRNA (h): sc-43928, Mfn2 siRNA (m): sc-60077, Mfn2 siRNA (r): sc-156013, Mfn2 shRNA Plasmid (h): sc-43928-SH, Mfn2 shRNA Plasmid (m): sc-60077-SH, Mfn2 shRNA Plasmid (r): sc-156013-SH, Mfn2 shRNA (h) Lentiviral Particles: sc-43928-V, Mfn2 shRNA (m) Lentiviral Particles: sc-60077-V and Mfn2 shRNA (r) Lentiviral Particles: sc-156013-V.

Molecular Weight of Mfn2: 86 kDa.

Postive Controls: HeLa whole cell lysate: sc-2200 or Hep G2 cell lysate: sc-2227.

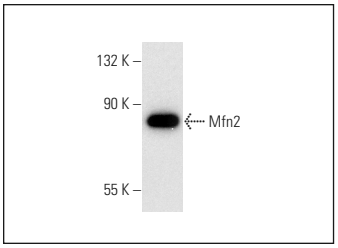
STORAGE

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

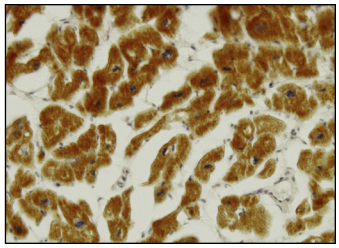
RESEARCH USE

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

DATA



Mfn2 (XX-1): sc-100560. Western blot analysis of Mfn2 expression in Hep G2 whole cell lysate.



Mfn2 (XX-1): sc-100560. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human heart tissue showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Ye, F., et al. 2011. Peroxisome proliferator-activated receptor γ (PPARγ) mediates a Ski oncogene-induced shift from glycolysis to oxidative energy metabolism. J. Biol. Chem. 286: 40013-40024.
2. Qi, Z., et al. 2012. Increased Insulin sensitivity and distorted mitochondrial adaptations during muscle unloading. Int. J. Mol. Sci. 13: 16971-16985.
3. Saita, S., et al. 2013. Selective escape of proteins from the mitochondria during mitophagy. Nat. Commun. 4: 1410.
4. Wu, Z., et al. 2014. Mitochondrial toxic effects of Aβ through mitofusins in the early pathogenesis of Alzheimer's disease. Mol. Neurobiol. 50: 986-996.
5. Yu, C.Y., et al. 2015. Dengue virus impairs mitochondrial fusion by cleaving mitofusins. PLoS Pathog. 11: e1005350.
6. Otera, H., et al. 2016. Drp1-dependent mitochondrial fission via MiD49/51 is essential for apoptotic cristae remodeling. J. Cell Biol. 212: 531-544.
7. Morita, M., et al. 2017. mTOR controls mitochondrial dynamics and cell survival via MTFP1. Mol. Cell 67: 922-935.e5.
8. Wiehe, R.S., et al. 2018. Endonuclease G promotes mitochondrial genome cleavage and replication. Oncotarget 9: 18309-18326.
9. Lee, W.C., et al. 2019. Empagliflozin protects HK-2 cells from high glucose-mediated injuries via a mitochondrial mechanism. Cells 8: 1085.
10. Harland, M., et al. 2020. Neuronal mitochondria modulation of LPS-induced neuroinflammation. J. Neurosci. 40: 1756-1765.
11. Zhao, H., et al. 2020. Neuroprotective role of Akt in hypoxia adaptation in andeans. Front. Neurosci. 14: 607711.
12. Xiao, L., et al. 2021. AMPK-dependent and -independent coordination of mitochondrial function and muscle fiber type by FNIP1. PLoS Genet. 17: e1009488.

PROTOCOLS

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