SANTA CRUZ BIOTECHNOLOGY, INC.

Mfn2 (F-5): sc-515647

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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.

CHROMOSOMAL LOCATION

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

SOURCE

Mfn2 (F-5) is a mouse monoclonal antibody raised against amino acids 461-528 mapping within a cytoplasmic domain of Mfn2 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Mfn2 (F-5) is available conjugated to agarose (sc-515647 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-515647 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-515647 PE), fluorescein (sc-515647 FITC), Alexa Fluor® 488 (sc-515647 AF488), Alexa Fluor® 546 (sc-515647 AF546), Alexa Fluor® 594 (sc-515647 AF594) or Alexa Fluor® 647 (sc-515647 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-515647 AF680) or Alexa Fluor® 790 (sc-515647 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

Mfn2 (F-5) is recommended for detection of Mfn2 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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).

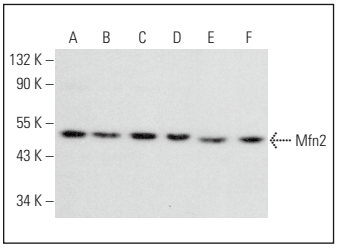
Suitable for use as control antibody for Mfn2 siRNA (h): sc-43928, Mfn2 siRNA (m): sc-60077, Mfn2 siRNA (r): sc-156013, Mfn2 shRNA Plasmid (h): sc-43928-SH, Mfn2 shRNA Plasmid (m): sc-60077-SH, Mfn2 shRNA Plasmid (r): sc-156013-SH, Mfn2 shRNA (h) Lentiviral Particles: sc-43928-V, Mfn2 shRNA (m) Lentiviral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

Molecular Weight of Mfn2: 86 kDa.

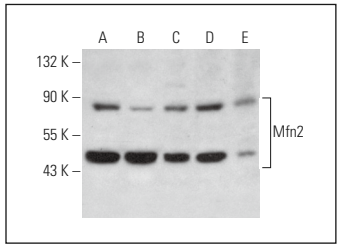
STORAGE

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

DATA



Mfn2 (F-5): sc-515647. Western blot analysis of Mfn2 expression in Hep G2 (**A**), RD (**B**), A-673 (**C**), c4 (**D**), WEHI-231 (**E**) and TK-1 (**F**) whole cell lysates.



Mfn2 (F-5): sc-515647. Western blot analysis of Mfn2 expression in Hep G2 (**A**), A-10 (**B**), HeLa (**C**) and K-562 (**D**) whole cell lysates and human heart tissue extract (**E**).

SELECT PRODUCT CITATIONS

1. Martín-Maestro, P., et al. 2017. Slower dynamics and aged mitochondria in sporadic Alzheimer's disease. Oxid. Med. Cell. Longev. 2017: 9302761.
2. Choi, G.E., et al. 2018. Glucocorticoid-mediated ER-mitochondria contacts reduce AMPA receptor and mitochondria trafficking into cell terminus via microtubule destabilization. Cell Death Dis. 9: 1137.
3. Li, P., et al. 2019. IR-783 inhibits breast cancer cell proliferation and migration by inducing mitochondrial fission. Int. J. Oncol. 55: 415-424.
4. Esencan, E., et al. 2020. Impaired mitochondrial stress response due to CLPP deletion is associated with altered mitochondrial dynamics and increased apoptosis in cumulus cells. Reprod. Sci. 27: 621-630.
5. Cha, Y., et al. 2021. SIRT2 regulates mitochondrial dynamics and reprogramming via MEK1-ERK-DRP1 and AKT1-DRP1 axes. Cell Rep. 37: 110155.
6. Zhang, H., et al. 2022. miR-141 impairs mitochondrial function in cardiomyocytes subjected to hypoxia/reoxygenation by targeting Sirt1 and Mfn2. Exp. Ther. Med. 24: 763.
7. Chen, X.S., et al. 2023. Angiotensin-(1-7) ameliorates sepsis-induced cardiomyopathy by alleviating inflammatory response and mitochondrial damage through the NFκB and MAPK pathways. J. Transl. Med. 21: 2.
8. Li, C., et al. 2023. Increased mitochondrial fission induces NLRP3/cGAS-STING mediated pro-inflammatory pathways and apoptosis in UVB-irradiated immortalized human keratinocyte HaCaT cells. Arch. Biochem. Biophys. 738: 109558.
9. Lai, Q., et al. 2023. Inhibition of KMO ameliorates myocardial ischemia injury via maintaining mitochondrial fusion and fission balance. Int. J. Biol. Sci. 19: 3077-3098.

RESEARCH USE

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