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MFN2 Antibody

Catalog # ASC11816

Product Information

Application	WB, IF, E, IHC-P
Primary Accession	O95140
Other Accession	NP_055689, 7662004
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	86402
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	MFN2 antibody can be used for detection of MFN2 by Western blot at 1 - 2 g/ml. Antibody can also be used for Immunohistochemistry at 5 g/mL. For Immunoflorescence start at 20 g/mL.

Additional Information

Gene ID	9927
Other Names	Mitofusin-2, 3.6.5.-, Transmembrane GTPase MFN2, MFN2, CPRP1, KIAA0214
Target/Specificity	MFN2; MFN2 antibody is human, mouse and rat reactive. At least three isoforms of MFN2 are known to exist. MFN2 antibody is predicted to not cross-react with MFN1.
Reconstitution & Storage	MFN2 antibody can be stored at 4℃ for three months and -20℃, stable for up to one year.
Precautions	MFN2 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	MFN2 {ECO:0000303|PubMed:12598526, ECO:0000312|HGNC:HGNC:16877}
Function	Mitochondrial outer membrane GTPase that mediates mitochondrial clustering and fusion (PubMed:11181170, PubMed:11950885, PubMed:19889647, PubMed:26214738, PubMed:28114303). Mitochondria are highly dynamic organelles, and their morphology is determined by the equilibrium between mitochondrial fusion and fission events (PubMed:28114303). Overexpression induces the formation of mitochondrial networks (PubMed:28114303). Membrane clustering requires GTPase activity and may involve a major rearrangement of the coiled coil domains (Probable). Plays a central role in mitochondrial metabolism and may be associated with obesity and/or apoptosis processes (By similarity). Plays an important role in

	the regulation of vascular smooth muscle cell proliferation (By similarity). Involved in the clearance of damaged mitochondria via selective autophagy (mitophagy) (PubMed:23620051). Is required for PRKN recruitment to dysfunctional mitochondria (PubMed:23620051). Involved in the control of unfolded protein response (UPR) upon ER stress including activation of apoptosis and autophagy during ER stress (By similarity). Acts as an upstream regulator of EIF2AK3 and suppresses EIF2AK3 activation under basal conditions (By similarity).
Cellular Location	Mitochondrion outer membrane; Multi-pass membrane protein Note=Colocalizes with BAX during apoptosis
Tissue Location	Ubiquitous; expressed at low level. Highly expressed in heart and kidney.

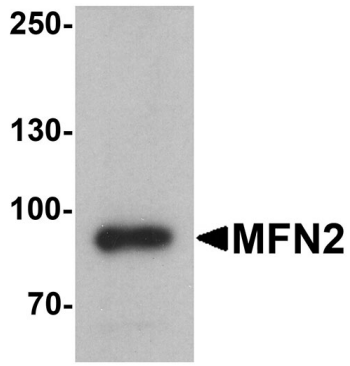
Background

Mitofusin 2 (MFN2) and the related protein MFN1 are mitochondrial membrane GTPase proteins that play a central role in mitochondrial metabolism and may be associated with obesity and/or apoptosis processes (1,2). MFN2 is ubiquitously expressed, and found in both the ER and outer mitochondrial membrane. MFN2 has two key domains: a coiled coil region that mediates MFN2 binding and a GTPase domain that likely plays a role in fusion (3,4). Both domains are essential for embryonic development and may play a role in the pathobiology of obesity. Overexpression of MFN2 causes mitochondrial dysfunction and cell death (5).

References

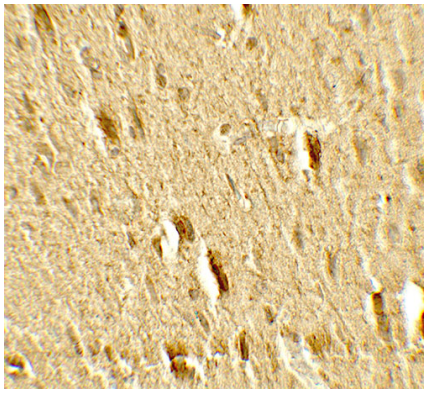
Chen H, Detmer SA, Ewald AJ, et al. Mitofusins Mfn1 and Mfn2 coordinately regulate mitochondrial fusion and are essential for embryonic development. J. Cell Biol. 2003; 160:189-200.
Ishihara N, Eura Y, and Mihara K. Mitofusin 1 and 2 play distinct roles in mitochondrial fusion reactions via GTPase activity. J. Cell Sci. 2004; 117:6535-46.
Bach D, Pich S, Soriano FX, et al. Mitofusin-2 determines mitochondrial network architecture and mitochondrial metabolism. A novel regulatory mechanism altered in obesity. J. Biol. Chem. 2003; 278:17190-7.
Renaldo F, Amati-Bonneau P, Slama A, et al. MFN2, a new gene responsible for mitochondrial DNA depletion. Brain 2012; 135:e223, 1-4.

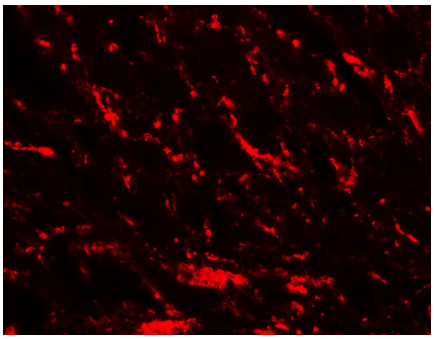
Images



Western blot analysis of MFN2 in human brain tissue lysate with MFN2 antibody at 1 µg/ml.

Immunohistochemistry of MFN2 in rat brain tissue with MFN2 antibody at 5 µg/mL.





Immunofluorescence of MFN2 in rat brain tissue with MFN2 antibody at 20 µg/mL.