3050 Spruce Street, St. Louis, MO 63103 USA
Tel: (800) 521-8956 (314) 771-5765 Fax: (800) 325-5052 (314) 771-5757
email: techservice@sial.com sigma-aldrich.com

Product Information

Anti-Mitofusin 2 antibody, Mouse monoclonal
clone Mito-2, purified from hybridoma cell culture

Catalog Number **M9073**

Product Description

Monoclonal Anti-Mitofusin 2 (mouse IgG1 isotype) is derived from the hybridoma Mito-2 produced by the fusion of mouse myeloma cells and splenocytes from BALB/c mice immunized with a synthetic peptide corresponding to a fragment of human Mitofusin 2 (GeneID: 9927), conjugated to KLH. The corresponding sequence differs by one and two amino acids in rat and mouse mitofusin 2, respectively. The isotype is determined using a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents, Catalog Number ISO2.

Monoclonal Anti-Mitofusin 2 recognizes rat and mouse Mitofusin 2. The antibody may be used in various immunochemical techniques including immunoblotting (~86 kDa).

Mitofusins (Mfn1 and Mfn2) are the mammalian homologs of the *Drosophila* protein fuzzy onion (Fzo). They are transmembrane GTPases embedded in the outer membrane of mitochondria.[1] These proteins are essential for fusion of mitochondria in mammalian cells.[2] The dynamic balance between fusion and fission determines mitochondrial morphology.[3] Mfn1 and Mfn2 form homotypic and heterotypic complexes that are functional for fusion. Mitochondrial fusion is also important for cell growth, mitochondrial membrane potential, respiration and embryonic development. Mice deficient in either Mfn1 or Mfn2 die in mid-gestation. Mfn2 mutant embryos have a specific and severe disruption of a layer of the placenta.[4] Mitofusin 2 is broadly expressed, with highest expression in heart and skeletal muscle and is induced during myogenesis.[1,4-5] Repression of Mfn2 causes morphological and functional fragmentation of the mitochondrial network into independent clusters and reduces mitochondrial membrane potential and glucose oxidation. Thus, Mfn2 is essential for the maintenance of mitochondrial network and controls mitochondrial metabolism. This Mfn2-dependent regulatory mechanism is disturbed in obesity by reduced Mfn2 expression.[5] Mutations in Mitofusin 2 cause Charcot-Marie-Tooth neuropathy type 2A, a neurological disorder that results from degeneration of axons in peripheral nerves.[6]

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide as a preservative.

Antibody concentration: ~1.0 mg/mL

Precautions and Disclaimer

For R&D use only. Not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

Store at –20 °C. For continuous use, the product may be stored at 2–8 °C for up to one month. For extended storage, freeze at –20 °C in working aliquots. Repeated freezing and thawing, or storage in "frost-free" freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilution samples should be discard if not used within 12 hours.

Product Profile

Immunoblotting: a working antibody concentration of 2-5 μg/mL is recommended using a whole extract of rat brain mitochondria.

Note: In order to obtain best results in various techniques and preparations, it is recommended to determine optimal working dilutions by titration.

References

1. Rojo, M. et al., *J. Cell Sci*., **115**, 1663-1674 (2002).
2. Koshiba, T. et al., *Science*, **305**, 858-862 (2004).
3. Santel, A., and Fuller, M.T., *J. Cell Sci*., **114**, 867-874 (2000).
4. Chen, H. et al., *J. Cell Biol*., **160**, 189-200 (2003).
5. Bach, D. et al., *J. Biol. Chem*., **278**, 17190-17197 (2003).
6. Zuchner, S. et al., *Nature Genet*., **36**, 449-51 (2004).

DS,VS,ST,TD,KAA,PHC,MAM 12/19-1