SANTA CRUZ BIOTECHNOLOGY, INC.

MITF (21D1418): sc-52938

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

MITF (microphthalmia-associated transcription factor) is a melanocytic nuclear protein that contains basic helix-loop-helix (HLH) and leucine zipper (LZ) domains. These protein motifs are frequently observed in other transcription factors and are particularly common to members of the Myc family. MITF can directly associate with DNA as a homodimer. It is required for the development and differentiation of melanocytes. Its expression is upregulated by cAMP and cAMP-dependent pathways. MITF activates several differenct gene promoters by binding to their E-boxes. Tyrosinase, TRP1 and TRP2 are pigment synthesis genes activated by MITF. When MITF is phosphorylated on Serine 73 (via the MAPK pathway), it associates with co-activators of the p300/CBP family and enhances transcription. MITF has several isoforms including MITF-M which is specifically expressed in melanocytes. In MITF-deficient mice there is a complete absence of melanocytes.

REFERENCES

1. Beckmann, H., et al. 1990. TFE3: a helix-loop-helix protein that activates transcription through the immunoglobulin enhancer μE3 motif. Genes Dev. 4: 167-179.
2. Fisher, D.E., et al. 1991. TFEB has DNA-binding and oligomerization properties of a unique helix-loop-helix/leucine-zipper family. Genes Dev. 5: 2342-2352.

CHROMOSOMAL LOCATION

Genetic locus: MITF (human) mapping to 3p14.1; Mitf (mouse) mapping to 6 D3.

SOURCE

MITF (21D1418) is a mouse monoclonal antibody raised against amino acids 408-419 of MITF of human origin.

PRODUCT

Each vial contains 50 µg IgG_1 kappa light chain in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

MITF (21D1418) is recommended for detection of MITF of mouse, rat, human, *Arabidopsis thaliana* and *Xenopus laevis* origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

MITF (21D1418) is also recommended for detection of MITF in additional species, including equine, bovine and canine.

Suitable for use as control antibody for MITF siRNA (h): sc-35934, MITF siRNA (m): sc-35935, MITF shRNA Plasmid (h): sc-35934-SH, MITF shRNA Plasmid (m): sc-35935-SH, MITF shRNA (h) Lentiviral Particles: sc-35934-V and MITF shRNA (m) Lentiviral Particles: sc-35935-V.

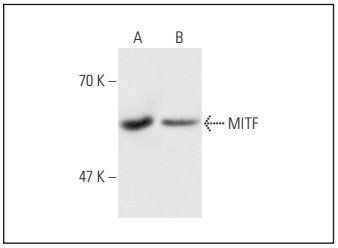
Molecular Weight of MITF: 60 kDa.

Positive Controls: C32 nuclear extract: sc-2136, NIH/3T3 nuclear extract: sc-2138 or Jurkat nuclear extract: sc-2132.

STORAGE

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

DATA



MITF (21D1418): sc-52938. Western blot analysis of MITF expression in Jurkat (**A**) and SK-MEL-28 (**B**) nuclear extracts.

SELECT PRODUCT CITATIONS

1. Li, X., et al. 2010. Baicalein inhibits melanogenesis through activation of the ERK signaling pathway. Int. J. Mol. Med. 25: 923-927.
2. Liu, H., et al. 2013. Lyoniresinol inhibits melanogenic activity through the induction of microphthalmia-associated transcription factor and extracellular receptor kinase activation. Mol. Cell. Biochem. 373: 211-216.
3. Yang, S.H., et al. 2017. Soyasaponin Ag inhibits α-MSH-induced melanogenesis in B16F10 melanoma cells via the downregulation of TRP-2. Int. J. Mol. Med. 40: 631-636.
4. Wu, Q., et al. 2018. Microphthalmia-associated transcription factor upregulates acetylcholinesterase expression during melanogenesis of murine melanoma cells. J. Biol. Chem. 293: 14417-14428.
5. Wang, H., et al. 2020. Oxidation of multiple MiT/TFE transcription factors links oxidative stress to transcriptional control of autophagy and lysosome biogenesis. Autophagy 16: 1683-1696.
6. Perdomo, J., et al. 2020. Melatonin induces melanogenesis in human SK-MEL-1 melanoma cells involving glycogen synthase kinase-3 and reactive oxygen species. Int. J. Mol. Sci. 21: 4970.
7. Joo, I.H., et al. 2023. *Ligularia fischeri* ethanol extract: an inhibitor of α-melanocyte-stimulating hormone-stimulated melanogenesis in B16F10 melanoma cells. J. Cosmet. Dermatol. 22: 637-644.
8. Alghamdi, K., et al. 2023. Stimulatory effects of *Lycium shawii* on human melanocyte proliferation, migration, and melanogenesis: *in vitro* and *in silico* studies. Front. Pharmacol. 14: 1169812.
9. Alanazi, M.M., et al. 2024. Modulatory effects of oxytocin on normal human cultured melanocyte proliferation, migration, and melanogenesis. Tissue Cell 91: 102579.

RESEARCH USE

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