SANTA CRUZ BIOTECHNOLOGY, INC.

MITF (4H205): sc-71587

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, TRP-1 and TRP-2 are pigment synthesis genes activated by MITF. When MITF is phosphorylated on Serine 73 (via the MAPK pathway), it associates with coactivators 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.
3. Kerkhoff, E., et al. 1991. Sequence-specific DNA binding by Myc proteins. Proc. Natl. Acad. Sci. USA 88: 4323-4327.
4. Artandi, S.E., et al. 1994. The basic helix-loop-helix-zipper domain of TFE3 mediates enhancer-promoter interaction. Mol. Cell. Biol. 14: 7704-7716.
5. Yasumoto, K., et al. 1997. Molecular cloning of cDNA encoding a human TFEC isoform, a newly identified transcriptional regulator. Biochim. Biophys. Acta 1353: 23-31.
6. Steingrimsson, E., et al. 1998. The bHLH-Zip transcription factor TFEB is essential for placental vascularization. Development 125: 4607-4616.
7. King, R., et al. 1999. Microphthalmia transcription factor. A sensitive and specific melanocyte marker for Melanoma Diagnosis. Am. J. Pathol. 155: 731-738.
8. Park, H.Y., et al. 2006. MITF mediates cAMP-induced protein kinase C-β expression in human melanocytes. Biochem. J. 395: 571-578.

CHROMOSOMAL LOCATION

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

SOURCE

MITF (4H205) is a mouse monoclonal antibody raised against amino acids 408-419 MITF of human origin.

PRODUCT

Each vial contains 100 µg IgG_1 in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

MITF (4H205) is recommended for detection of MITF of mouse, rat, human, avian and *Xenopus* 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)].

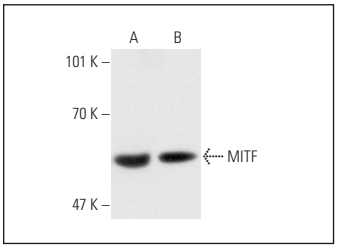
MITF (4H205) is also recommended for detection of MITF in additional species, including equine, bovine and canine.

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

DATA



MITF (4H205): sc-71587. Western blot analysis of MITF expression in Jurkat (**A**) and SK-MEL-28 (**B**) nuclear extracts.

SELECT PRODUCT CITATIONS

1. Perera, R.M., et al. 2015. Transcriptional control of autophagy-lysosome function drives pancreatic cancer metabolism. Nature 524: 361-365.

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.

PROTOCOLS

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