

# MITF (C-17): sc-11002

## 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 and is required for the development and differentiation of melanocytes. Its expression is upregulated by cAMP and cAMP-dependent pathways. MITF activates several different gene promoters by binding to their E-boxes. Tyrosinase, TRP1 and TRP2 are pigment synthesis genes activated by MITF. When MITF is phosphorylated on Ser73 (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 muE3 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. Rehli, M., et al. 1999. Cloning and characterization of the murine genes for bHLH-ZIP transcription factors TFEC and TFEB reveal a common gene organization for all Mitf subfamily members. *Genomics* 56: 111-120.
8. Rehli, M., et al. 1999. TFEC is a macrophage-restricted member of the microphthalmia-TFE subfamily of basic helix-loop-helix leucine zipper transcription factors. *J. Immunol.* 162: 1559-1565.

## CHROMOSOMAL LOCATION

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

## SOURCE

MITF (C-17) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of MITF of human origin.

## STORAGE

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

## PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-11002 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

Available as TransCruz reagent for Gel Supershift and ChIP applications, sc-11002 X, 200 µg/0.1 ml.

## APPLICATIONS

MITF (C-17) is recommended for detection of MITF of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

MITF (C-17) is also recommended for detection of MITF in additional species, including equine, bovine, porcine 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.

MITF (C-17) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

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.

## SELECT PRODUCT CITATIONS

1. Babina, M., et al. 2005. The transcription factor profile of human mast cells in comparison with monocytes and granulocytes. *Cell. Mol. Life Sci.* 62: 214-226.
2. Esumi, N., et al. 2007. VMD2 promoter requires two proximal E-box sites for its activity *in vivo* and is regulated by the MITF-TFE family. *J. Biol. Chem.* 282: 1838-1850.
3. Visser, M., et al. 2012. HERC2 rs12913832 modulates human pigmentation by attenuating chromatin-loop formation between a long-range enhancer and the OCA2 promoter. *Genome Res.* 22: 446-455.

## RESEARCH USE

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



Try **MITF (3F276): sc-71588**, our highly recommended monoclonal alternative to MITF (C-17).