

Mouse Monoclonal Antibody to MITF

Purified Mouse Monoclonal Antibody Catalog # AO2420a

Product Information

Application WB, FC, E **Primary Accession** 075030 Reactivity Human Host Mouse Clonality Monoclonal **Clone Names** 8F1G5 Isotype Mouse IgG1 58795 **Calculated MW**

Description This gene encodes a transcription factor that contains both basic

helix-loop-helix and leucine zipper structural features. It regulates the differentiation and development of melanocytes retinal pigment epithelium

and is also responsible for pigment cell-specific transcription of the

melanogenesis enzyme genes. Heterozygous mutations in the this gene cause auditory-pigmentary syndromes, such as Waardenburg syndrome type 2 and Tietz syndrome. Alternatively spliced transcript variants encoding different

isoforms have been identified.;

Immunogen Purified recombinant fragment of human MITF (AA: 1-114) expressed in E.

Coli.

Formulation Purified antibody in PBS with 0.05% sodium azide

Application Note ELISA: 1/10000; WB: 1/500 - 1/2000; FCM: 1/200 - 1/400

Additional Information

Gene ID 4286

Other Names MI; WS2; CMM8; WS2A; bHLHe32

Dilution WB~~1:1000 FC~~1:10~50 E~~N/A

Storage Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store

at -20°C in small aliquots to prevent freeze-thaw cycles.

PrecautionsMouse Monoclonal Antibody to MITF is for research use only and not for use

in diagnostic or therapeutic procedures.

Protein Information

Name

MITF {ECO:0000303 | PubMed:8069297, ECO:0000312 | HGNC:HGNC:7105}

Function

Transcription factor that acts as a master regulator of melanocyte survival and differentiation as well as melanosome biogenesis (PubMed:10587587, PubMed:<u>22647378</u>, PubMed:<u>27889061</u>, PubMed:<u>9647758</u>). Binds to M-boxes (5'-TCATGTG-3') and symmetrical DNA sequences (E-boxes) (5'-CACGTG-3') found in the promoter of pigmentation genes, such as tyrosinase (TYR) (PubMed: 10587587, PubMed: 22647378, PubMed: 27889061, PubMed: 9647758). Involved in the cellular response to amino acid availability by acting downstream of MTOR: in the presence of nutrients, MITF phosphorylation by MTOR promotes its inactivation (PubMed:36608670). Upon starvation or lysosomal stress, inhibition of MTOR induces MITF dephosphorylation, resulting in transcription factor activity (PubMed:<u>36608670</u>). Plays an important role in melanocyte development by regulating the expression of tyrosinase (TYR) and tyrosinase-related protein 1 (TYRP1) (PubMed: 10587587, PubMed: 22647378, PubMed: 27889061, PubMed:9647758). Plays a critical role in the differentiation of various cell types, such as neural crest-derived melanocytes, mast cells, osteoclasts and optic cup-derived retinal pigment epithelium (PubMed:10587587, PubMed:22647378, PubMed:27889061, PubMed:9647758).

Cellular Location

Nucleus. Cytoplasm. Lysosome membrane Note=When nutrients are present, recruited to the lysosomal membrane via association with GDP-bound RagC/RRAGC (or RagD/RRAGD): it is then phosphorylated by MTOR (PubMed:23401004, PubMed:36608670) Phosphorylation by MTOR promotes ubiquitination and degradation (PubMed:36608670). Conversely, inhibition of mTORC1, starvation and lysosomal disruption, promotes dephosphorylation and translocation to the nucleus (PubMed:36608670). Phosphorylation by MARK3/cTAK1 promotes association with 14-3-3/YWHA adapters and retention in the cytosol (PubMed:16822840).

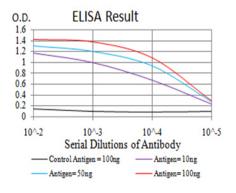
Tissue Location

Expressed in melanocytes (at protein level). [Isoform C2]: Expressed in the kidney and retinal pigment epithelium. [Isoform H2]: Expressed in the kidney. [Isoform Mdel]: Expressed in melanocytes.

References

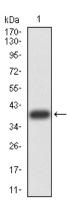
1.Proc Natl Acad Sci U S A. 2015 Feb 3;112(5):E420-9.; 2.Cell Mol Life Sci. 2015 Apr;72(7):1249-60.;

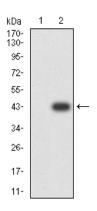
Images



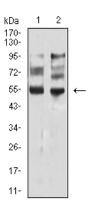
Black line: Control Antigen (100 ng); Purple line: Antigen (10ng); Blue line: Antigen (50 ng); Red line: Antigen (100 ng)

Western blot analysis using MITF mAb against human MITF (AA: 1-114) recombinant protein. (Expected MW is 38.9 kDa)

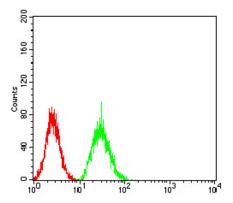




Western blot analysis using MITF mAb against HEK293 (1) and MITF (AA: 1-114)-hIgGFc transfected HEK293 (2) cell lysate.



Western blot analysis using MITF mouse mAb against PANC-1 (1) and A549 (2) cell lysate.



Flow cytometric analysis of Hela cells using MITF mouse mAb (green) and negative control (red).

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.