

**Mouse Monoclonal Antibody to MITF**  
**Purified Mouse Monoclonal Antibody**  
**Catalog # AO2461a****Specification**

---

**Mouse Monoclonal Antibody to MITF - Product Information**

Application	<b>E, WB, FC</b>
Primary Accession	<a href="#">O75030</a>
Reactivity	<b>Human</b>
Host	<b>Mouse</b>
Clonality	<b>Monoclonal</b>
Isotype	<b>Mouse IgG1</b>
Calculated MW	<b>58.8kDa KDa</b>

**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

**Mouse Monoclonal Antibody to MITF - Additional Information**

**Gene ID** 4286

**Other Names**

MI; WS2; CMM8; WS2A; bHLHe32

**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.

**Precautions**

Mouse Monoclonal Antibody to MITF is for research use only and not for use in diagnostic or therapeutic procedures.

**Mouse Monoclonal Antibody to MITF - 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:<a href="http://www.uniprot.org/citations/10587587" target="\_blank">10587587</a>, PubMed:<a href="http://www.uniprot.org/citations/22647378" target="\_blank">22647378</a>, PubMed:<a href="http://www.uniprot.org/citations/27889061" target="\_blank">27889061</a>, PubMed:<a href="http://www.uniprot.org/citations/9647758" target="\_blank">9647758</a>). 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:<a href="http://www.uniprot.org/citations/10587587" target="\_blank">10587587</a>, PubMed:<a href="http://www.uniprot.org/citations/22647378" target="\_blank">22647378</a>, PubMed:<a href="http://www.uniprot.org/citations/27889061" target="\_blank">27889061</a>, PubMed:<a href="http://www.uniprot.org/citations/9647758" target="\_blank">9647758</a>). 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:<a href="http://www.uniprot.org/citations/36608670" target="\_blank">36608670</a>). Upon starvation or lysosomal stress, inhibition of MTOR induces MITF dephosphorylation, resulting in transcription factor activity (PubMed:<a href="http://www.uniprot.org/citations/36608670" target="\_blank">36608670</a>). Plays an important role in melanocyte development by regulating the expression of tyrosinase (TYR) and tyrosinase-related protein 1 (TYRP1) (PubMed:<a href="http://www.uniprot.org/citations/10587587" target="\_blank">10587587</a>, PubMed:<a href="http://www.uniprot.org/citations/22647378" target="\_blank">22647378</a>, PubMed:<a href="http://www.uniprot.org/citations/27889061" target="\_blank">27889061</a>, PubMed:<a href="http://www.uniprot.org/citations/9647758" target="\_blank">9647758</a>). 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:<a href="http://www.uniprot.org/citations/10587587" target="\_blank">10587587</a>, PubMed:<a href="http://www.uniprot.org/citations/22647378" target="\_blank">22647378</a>, PubMed:<a href="http://www.uniprot.org/citations/27889061" target="\_blank">27889061</a>, PubMed:<a href="http://www.uniprot.org/citations/9647758" target="\_blank">9647758</a>).

### 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.

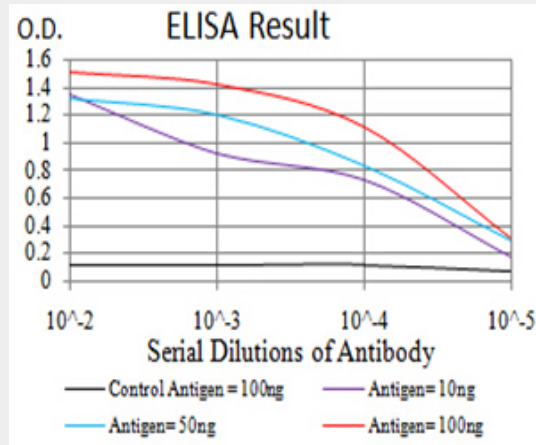
### Mouse Monoclonal Antibody to MITF - Protocols

Provided below are standard protocols that you may find useful for product applications.

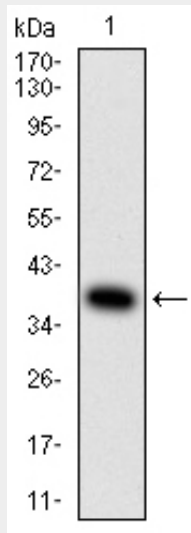
- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)

- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

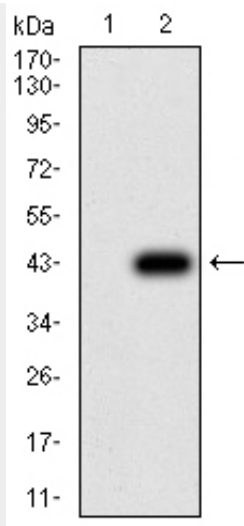
**Mouse Monoclonal Antibody to MITF - Images**



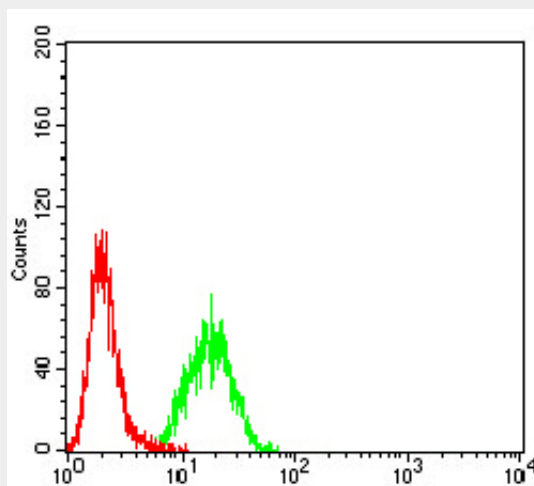
Black line: Control Antigen (100 ng); Purple line: Antigen (10ng); Blue line: Antigen (50 ng); Red line: Antigen (100 ng)



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 HEK2993 (1) and MITF (AA: 1-114)-hlgGfc transfected HEK2993 (2) cell lysate.



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

#### Mouse Monoclonal Antibody to MITF - References

1. Cell Mol Life Sci. 2015 Apr;72(7):1249-60.; 2. Int J Clin Exp Pathol. 2013 Jul 15;6(8):1658-64.;