

MICU1 Monoclonal Antibody(Mix)
Catalog # AP63570**Specification****MICU1 Monoclonal Antibody(Mix) - Product Information**

Application	WB, IHC-P, IF
Primary Accession	Q9BPX6
Reactivity	Human, Mouse, Rat
Host	Mouse
Clonality	Monoclonal

MICU1 Monoclonal Antibody(Mix) - Additional Information**Gene ID** 10367**Other Names**

Calcium uptake protein 1, mitochondrial; Atopy-related autoantigen CALC; ara CALC;
Calcium-binding atopy-related autoantigen 1; allergen Hom s 4

Dilution

WB~~WB: 1:1000-2000 IHC: 1:100-200 IF 1:200
IHC-P~~N/A
IF~~WB: 1:1000-2000 IHC: 1:100-200 IF 1:200

Format

PBS, pH 7.4, containing 0.09% (W/V) sodium azide as Preservative and 50% Glycerol.

Storage Conditions

-20°C

MICU1 Monoclonal Antibody(Mix) - Protein Information**Name** MICU1 {ECO:0000303|PubMed:20693986, ECO:0000312|HGNC:HGNC:1530}**Function**

Calcium sensor of the mitochondrial calcium uniporter (MCU) channel, which senses calcium level via its EF-hand domains (PubMed:20693986, PubMed:23101630, PubMed:23747253, PubMed:24313810, PubMed:24332854, PubMed:24503055, PubMed:24560927, PubMed:26341627, PubMed:26903221, PubMed:27099988, PubMed:28615291, PubMed:30454562)

target="_blank">30454562, PubMed:30638448, PubMed:32494073, PubMed:32667285, PubMed:32762847, PubMed:32790952, PubMed:34463251, PubMed:36206740, PubMed:37036971, PubMed:37126688). MICU1 and MICU2 (or MICU3) form a disulfide-linked heterodimer that stimulates and inhibits MCU activity, depending on the concentration of calcium (PubMed:24560927, PubMed:26903221, PubMed:28615291, PubMed:32148862, PubMed:32494073, PubMed:32667285, PubMed:32762847, PubMed:32790952, PubMed:36206740, PubMed:37036971, PubMed:37126688). At low calcium levels, MICU1 occludes the pore of the MCU channel, preventing mitochondrial calcium uptake (PubMed:32494073, PubMed:32667285, PubMed:32762847, PubMed:37036971, PubMed:37126688). At higher calcium levels, calcium-binding to MICU1 and MICU2 (or MICU3) induces a conformational change that weakens MCU-MICU1 interactions and moves the MICU1-MICU2 heterodimer away from the pore, allowing calcium permeation through the MCU channel (PubMed:32494073, PubMed:32667285, PubMed:32762847). Also required to protect against manganese toxicity by preventing manganese uptake by MCU: mechanistically, manganese-binding to its EF-hand domains does not induce any conformational change, maintaining MCU pore occlusion (PubMed:30082385, PubMed:30403999). Also acts as a barrier for inhibitors of the MCU channel, such as ruthenium red or its derivative Ru360 (PubMed:37244260). Acts as a regulator of mitochondrial cristae structure independently of its ability to regulate the mitochondrial calcium uniporter channel (PubMed:31427612, PubMed:37098122). Regulates glucose-dependent insulin secretion in pancreatic beta-cells by regulating mitochondrial calcium uptake (PubMed:22904319). Induces T-helper 1-mediated autoreactivity, which is accompanied by the release of IFNG (PubMed:16002733).

Cellular Location

Mitochondrion intermembrane space. Mitochondrion inner membrane. Note=Recruited to the mitochondrial inner membrane by EMRE/SMDT1 (PubMed:30454562). Also localizes to mitochondrial cristae junctions (PubMed:31427612)

Tissue Location

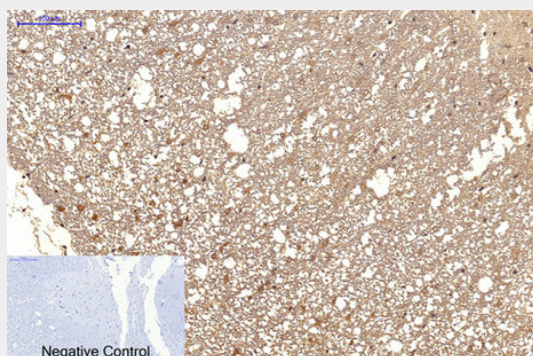
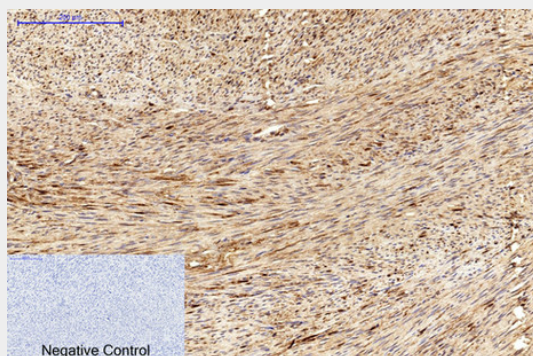
Expressed in epithelial cell lines. Strongly expressed in epidermal keratinocytes and dermal endothelial cells

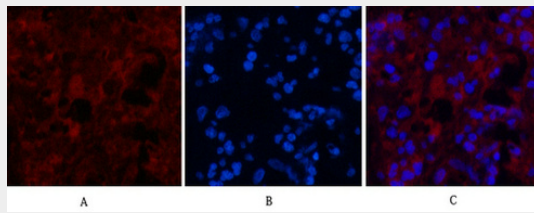
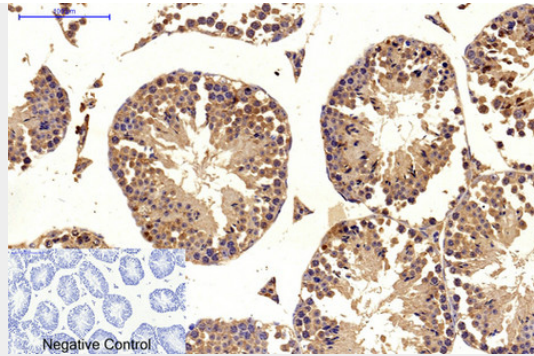
MICU1 Monoclonal Antibody(Mix) - Protocols

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](#)

MICU1 Monoclonal Antibody(Mix) - Images





MICU1 Monoclonal Antibody(Mix) - Background

Key regulator of mitochondrial calcium uniporter (MCU) that senses calcium level via its EF-hand domains (PubMed:20693986, PubMed:23101630, PubMed:23747253, PubMed:24313810, PubMed:24332854, PubMed:24503055, PubMed:24560927, PubMed:26341627, PubMed:26903221, PubMed:27099988). MICU1 and MICU2 form a disulfide-linked heterodimer that stimulates and inhibits MCU activity, depending on the concentration of calcium. MICU1 acts both as an activator or inhibitor of mitochondrial calcium uptake (PubMed:26903221). Acts as a gatekeeper of MCU at low concentration of calcium, preventing channel opening (PubMed:26903221). Enhances MCU opening at high calcium concentration, allowing a rapid response of mitochondria to calcium signals generated in the cytoplasm (PubMed:24560927, PubMed:26903221). Regulates glucose-dependent insulin secretion in pancreatic beta-cells by regulating mitochondrial calcium uptake (PubMed:22904319). Induces T-helper 1-mediated autoreactivity, which is accompanied by the release of IFNG (PubMed:16002733).