

Anti-CCDC109A antibody (N-term)



Description	Rabbit polyclonal to CCDC109A (N-term).
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Model	STJ92067
Host	Rabbit
Reactivity	Human, Mouse
Applications	ELISA, IHC
Immunogen	Synthesized peptide derived from human CCDC109A.
Immunogen Region	50-130 aa, Internal
Gene ID	90550
Gene Symbol	MCU
Dilution range	IHC 1:100-1:300ELISA 1:40000
Specificity	CCDC109A Polyclonal Antibody detects endogenous levels of CCDC109A protein.
Purification	The antibody was affinity-purified from rabbit antiserum by affinity-chromatography using epitope-specific immunogen.
Note	For Research Use Only (RUO).
Protein Name	Calcium uniporter protein, mitochondrial HsMCU Coiled-coil domain-containing protein 109A
Molecular Weight	39.867 kDa
Clonality	Polyclonal
Conjugation	Unconjugated

Isotype	IgG
Formulation	Liquid in PBS containing 50% glycerol, 0.5% BSA and 0.02% sodium azide.
Concentration	1 mg/ml
Storage Instruction	Store at -20°C, and avoid repeat freeze-thaw cycles.
Database Links	HGNC:23526 OMIM:614197
Alternative Names	Calcium uniporter protein, mitochondrial HsMCU Coiled-coil domain-containing protein 109A
Function	Mitochondrial inner membrane calcium uniporter that mediates calcium uptake into mitochondria. Constitutes the pore-forming and calcium-conducting subunit of the uniporter complex (uniplex). Activity is regulated by MICU1 and MICU2. At low Ca(2+) levels MCU activity is down-regulated by MICU1 and MICU2; at higher Ca(2+) levels MICU1 increases MCU activity. Mitochondrial calcium homeostasis plays key roles in cellular physiology and regulates cell bioenergetics, cytoplasmic calcium signals and activation of cell death pathways. Involved in buffering the amplitude of systolic calcium rises in cardiomyocytes. While dispensable for baseline homeostatic cardiac function, acts as a key regulator of short-term mitochondrial calcium loading underlying a 'fight-or-flight' response during acute stress: acts by mediating a rapid increase of mitochondrial calcium in pacemaker cells. participates in mitochondrial permeability transition during ischemia-reperfusion injury. Regulates glucose-dependent insulin secretion in pancreatic beta-cells by regulating mitochondrial calcium uptake. Mitochondrial calcium uptake in skeletal muscle cells is involved in muscle size in adults. Regulates synaptic vesicle endocytosis kinetics in central nerve terminal. Involved in antigen processing and presentation.
Sequence and Domain Family	The N-terminal MCU domain is required for efficient Ca(2+) uptake and for interaction with MCUR1. It is not required for targeting to the mitochondria, oligomerization, interaction with MICU1 and MICU2, or assembly of the uniplex complex. Forms a well-packed pentamer with an overall cylindrical shape. The inner core of the pentamer is formed with the second transmembrane region and the second coiled-coil region: while the transmembrane regions pack into a five-helix bundle having a largely polar pore across the membrane, the coiled-coil outside the membrane forms a pentamer with a hydrophobic core. The inner core is wrapped by the first transmembrane region through contacts between the first and the second transmembrane regions. The second transmembrane is followed by the inner juxtamembrane region (IJMH) that orients at a wide angle relative to the second transmembrane. The two core domains are held together on the periphery by the outer juxtamembrane helix (OJMH). The critical DXXE motif connecting the transmembrane regions forms a pentameric barrel that constitutes the mouth of the pore. Inside the barrel, two acidic residues are in position to form two carboxylate rings. In absence of SMDT1/EMRE regulator, the calcium ions cannot exit the channel, suggesting that SMDT1/EMRE-binding induces conformational rearrangements to allow calcium to exit.
Cellular Localization	Mitochondrion inner membrane
Post-translational Modifications	Phosphorylation by CaMK2 in heart leads to increased MCU current. The regulation of MCU by CaMK2 is however subject to discussion: another

group was unable to reproduce these results . Phosphorylated on tyrosines by PTK2B/PYK2, promoting oligomerization .

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