MCU Protein, Mouse (Cell-Free, His)

Cat. No.:	HY-P702375
Synonyms:	Calcium uniporter protein, mitochondrial
Species:	Mouse
Source:	E. coli Cell-free
Accession:	Q3UMR5 (A50-E350)
Gene ID:	215999
Molecular Weight:	37.7 kDa

PROPERTIES

AA Sequence	A H Q R P A S W Q S V G A A Y C S T V V P S D D V T V V Y Q N G L P V I S V R L P S R R E R C Q F T L K P I S D S V G V F L R Q L Q E E D R G I D R V A I Y S P D G V R V A A S T G I D L L L L D D F K L V I N D L T Y H V R P P K R D L L S H E D A A T L N D V K T L V Q Q L Y T T L C I E Q H Q L N K E R E L V E R L E D L K Q Q L A P L E K V R I E I S R K A E K R T T L V L W G G L A Y M A T Q F G I L A R L T W W E Y S W D I M E P V T Y F I T Y G S A M A M Y A Y F V M T R Q E Y V Y P E A R D R Q Y L L F F H K G A K K S R F D L E K Y N Q L K D A I A Q A E M D L K R L R D P L Q V H L P L R Q I G E K E
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.22 μm filtered solution of Tris/PBS-based buffer, 6% Trehalose, pH 8.0.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconsititution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH_2O. For long term storage it is recommended to add 5-50% of glycerol (final concentration). Our default final concentration of glycerol is 50%. Customers could use it as reference.
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

DESCRIPTION

Background	MCU protein, a mitochondrial inner membrane calcium uniporter, serves as the pore-forming and calcium-conducting subunit of the uniporter complex (uniplex), mediating the uptake of calcium into mitochondria. Its activity is intricately regulated by MICU1 and MICU2, with low Ca(2+) levels down-regulating MCU activity and higher Ca(2+) levels stimulating

MCU activity. This regulatory mechanism plays a crucial role in mitochondrial calcium homeostasis, influencing cellular physiology, bioenergetics, and various cellular signaling pathways. In cardiomyocytes, MCU participates in buffering systolic calcium rises, contributing to cardiac function. Additionally, MCU plays a key role in acute stress responses, facilitating a rapid increase in mitochondrial calcium in pacemaker cells. It is involved in processes such as mitochondrial permeability transition during ischemia-reperfusion injury, regulation of glucose-dependent insulin secretion in pancreatic beta-cells, modulation of muscle size in adults, and influencing synaptic vesicle endocytosis kinetics in central nerve terminals. The activity of MCU is inhibited by compounds like ruthenium red or its derivative Ru360.

Caution: Product has not been fully validated for medical applications. For research use only.

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