

# Product data sheet



MedKoo Cat#: 533794 Name: MCU-i4 CAS#: 371924-24-2 Chemical Formula: C <sub>23</sub> H <sub>27</sub> N <sub>3</sub> O <sub>2</sub> Exact Mass: 377.2103 Molecular Weight: 377.488	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years. In solvent: -80°C 3 months; -20°C 2 weeks.

## 1. Product description:

MCU-i4 is a novel negative modulator of the MCU, binding MICU1 and impairing muscle cell growth.

## 2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under “QC And Documents” section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

## 3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMSO	10.70	28.35
Ethanol	56.88	150.67

## 4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.65 mL	13.25 mL	26.49 mL
5 mM	0.53 mL	2.65 mL	5.30 mL
10 mM	0.26 mL	1.32 mL	2.65 mL
50 mM	0.05 mL	0.26 mL	0.53 mL

## 5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of “Calculator”

## 6. Recommended literature which reported protocols for in vitro and in vivo study

### In vitro study

1. Di Marco G, Vallese F, Jourde B, Bergsdorf C, Sturlese M, De Mario A, Techer-Etienne V, Haasen D, Oberhauser B, Schlegler S, Minetti G, Moro S, Rizzuto R, De Stefani D, Fornaro M, Mammucari C. A High-Throughput Screening Identifies MICU1 Targeting Compounds. Cell Rep. 2020 Feb 18;30(7):2321-2331.e6. doi: 10.1016/j.celrep.2020.01.081. PMID: 32075766; PMCID: PMC7034061.

### In vivo study

1. Di Marco G, Vallese F, Jourde B, Bergsdorf C, Sturlese M, De Mario A, Techer-Etienne V, Haasen D, Oberhauser B, Schlegler S, Minetti G, Moro S, Rizzuto R, De Stefani D, Fornaro M, Mammucari C. A High-Throughput Screening Identifies MICU1 Targeting Compounds. Cell Rep. 2020 Feb 18;30(7):2321-2331.e6. doi: 10.1016/j.celrep.2020.01.081. PMID: 32075766; PMCID: PMC7034061.

## 7. Bioactivity

### Biological target:

MCU-i4 blocks the IP<sub>3</sub>-dependent mitochondrial Ca<sup>2+</sup>-uptake, maintaining the gatekeeping role of their target.

### In vitro activity

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For this purpose, this study measured mitochondrial  $\text{Ca}^{2+}$  uptake speed in cells permeabilized with digitonin and then perfused with  $3 \mu\text{M}$   $\text{Ca}^{2+}$  in the presence of the active molecules (Figure 2C). MCU-i4 and MCU-i11 decreased mitochondrial  $\text{Ca}^{2+}$  uptake speed. These results confirm that the selected compounds impinge directly on the MCU complex activity rather than on  $\text{Ca}^{2+}$  release from intracellular stores or on cytosolic  $[\text{Ca}^{2+}]$ .

Reference: Cell Rep. 2020 Feb 18;30(7):2321-2331.e6. <https://pubmed.ncbi.nlm.nih.gov/32075766/>

## In vivo activity

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Both MCU-i4 and MCU-i11 inhibited mitochondrial  $\text{Ca}^{2+}$  uptake in myofibers (Figure 5C). Both compounds decreased myotube width (Figure 5D). These data prove the efficacy of MCU-i4 and MCU-i11 *ex vivo* and indicate that pharmacological modulation of mitochondrial  $\text{Ca}^{2+}$  uptake interferes with an essential biological process.

Reference: Cell Rep. 2020 Feb 18;30(7):2321-2331.e6. <https://pubmed.ncbi.nlm.nih.gov/32075766/>

*Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.*