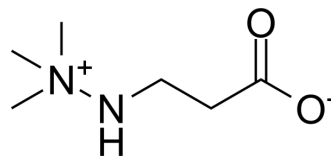


## Meldonium

Cat. No.:	HY-B1836		
CAS No.:	76144-81-5		
Molecular Formula:	C <sub>6</sub> H <sub>14</sub> N <sub>2</sub> O <sub>2</sub>		
Molecular Weight:	146.19		
Target:	Mitochondrial Metabolism		
Pathway:	Metabolic Enzyme/Protease		
Storage:	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	2 years
		-20°C	1 year



### SOLVENT & SOLUBILITY

In Vitro	H <sub>2</sub> O : 50 mg/mL (342.02 mM; Need ultrasonic)				
		Solvent Concentration	Mass		
	Preparing Stock Solutions		1 mg	5 mg	10 mg
		1 mM	6.8404 mL	34.2021 mL	68.4041 mL
		5 mM	1.3681 mL	6.8404 mL	13.6808 mL
	10 mM	0.6840 mL	3.4202 mL	6.8404 mL	
Please refer to the solubility information to select the appropriate solvent.					
In Vivo	1. Add each solvent one by one: PBS Solubility: 100 mg/mL (684.04 mM); Clear solution; Need ultrasonic				

### BIOLOGICAL ACTIVITY

Description	Meldonium (MET-88) functions as a cardioprotective agent by competitively inhibiting $\gamma$ -butyrobetaine hydroxylase (BBOX) and carnitine/organic cation transporter type 2 (OCTN2). Mildronate (Meldonium) exhibits IC <sub>50</sub> values of 34-62 $\mu$ M for human recombinant BBOX and an EC <sub>50</sub> of 21 $\mu$ M for human OCTN2. Meldonium is a fatty acid oxidation inhibitor <sup>[1][2]</sup> .
IC <sub>50</sub> & Target	IC <sub>50</sub> : 34-62 $\mu$ M (human recombinant BBOX). EC <sub>50</sub> : 21 $\mu$ M (human OCTN2).
In Vitro	Meldonium (20-40 $\mu$ M; 24 h) ameliorates lung injury by targeting PFKF to regulate glycolysis, which promotes Nrf2 translocation from the cytoplasm to the nucleus to alleviate oxidative stress and mitochondrial damage under hypoxic condition <sup>[3]</sup> . MCE has not independently confirmed the accuracy of these methods. They are for reference only. RT-PCR <sup>[3]</sup>

Cell Line:	Rat alveolar type II epithelial RLE-6TN cells in hypoxia incubator
Concentration:	20, or 40 $\mu$ M
Incubation Time:	24 h
Result:	Significantly decreased the mRNA expression of PFKP, PDK1, and PKM2 compared with the hypoxia group.

#### Western Blot Analysis<sup>[3]</sup>

Cell Line:	Rat alveolar type II epithelial RLE-6TN cells in hypoxia incubator
Concentration:	20, or 40 $\mu$ M
Incubation Time:	24 h
Result:	Significantly reduced the protein expression of PFKP, PKM2, and LDHA.

#### In Vivo

Meldonium (50, 100, or 200 mg/kg; once daily for 3 days) modestly attenuates hypoxia-induced lung injury in mice<sup>[3]</sup>. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

## CUSTOMER VALIDATION

- J Pharmaceut Biomed. 2020, 113870.
- J Anim Sci. 2022 Mar 5;skac069.

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## REFERENCES

- [1]. Daohui Wang, et al. Meldonium Ameliorates Hypoxia-Induced Lung Injury and Oxidative Stress by Regulating Platelet-Type Phosphofructokinase-Mediated Glycolysis. *Front Pharmacol.* 2022 Apr 5:13:863451.
- [2]. Dambrova M, et al. Pharmacological effects of meldonium: Biochemical mechanisms and biomarkers of cardiometabolic activity. *Pharmacol Res.* 2016 Nov;113(Pt B):771-780.
- [3]. Jolanta Pupure, et al. Neuroprotective properties of mildronate, a mitochondria-targeted small molecule. *Neurosci Lett.* 2010 Feb 12;470(2):100-5.

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

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